ON PULMONARY CONSUMPTION AND HOOPING COUGH

Dr. HASTINGS

SPECIAL TREATMENT

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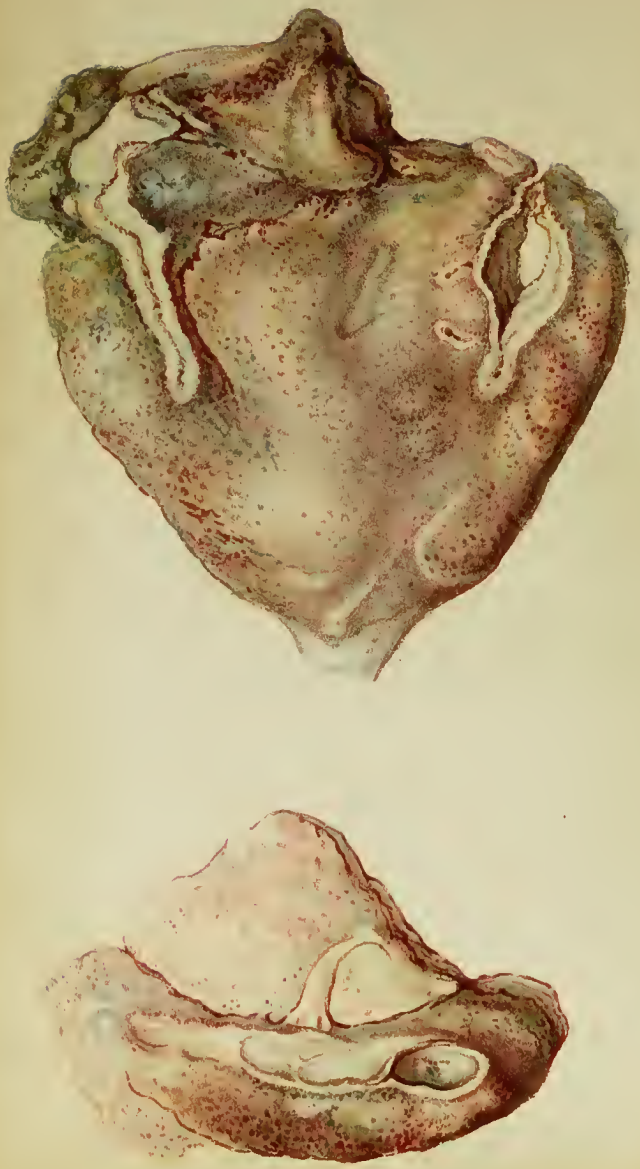

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AND

HOOPING COUGH.

BY

JOHN HASTINGS, M.D.

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ERRATUM.

Page 43, line 7, for "throat," read "thorax."

PREFACE.

The following pages contain the result of my investigations into the nature and treatment of Consumption and Hooping Cough, during a period of between seven and eight years.

It was my original intention to have deferred the publication of these researches until a more extended inquiry had rendered them still more complete; but I think the reader will find sufficient evidence of the importance of the results I have arrived at, in the body of the work, to justify their immediate publication.

Although the success which attends the administration of new remedies, is rarely confirmed to the fullest extent by subsequent

trials, I have no hesitation in affirming, that the agents here introduced for the first time, will be found to be valuable additions to our remedial measures, in the treatment of the diseases referred to.

J. H.

Albemarle Street,
June, 1854.

TREATMENT

OF

PULMONARY CONSUMPTION.

CHAPTER I.

INTRODUCTORY REMARKS.

ALTHOUGH pathological science has made great progress since the commencement of the present century, the *treatment* of disease has not kept pace with it. The great feature of the medical schools during that period has been the study of pathology, and it still continues to engross the mind of the profession. Illustrated and aided by the microscope and chemistry, it has shed considerable light upon the *nature* of some diseases, which was formerly, too often, a subject of conjecture; and has also led to a more accurate diagnosis. Nevertheless there is another stage in the inquiry, which the microscope and the chemist have failed to elucidate, namely, the first step from health to disease.

The study of pathology under all these advantages, although it has enabled the physician to make some progress in investigating the nature of diseases, does not appear to have repaid the labour which has been bestowed upon it by those eminent men who have spent the greater part of their lives in the inquiry. The intimate nature of many diseases is as obscure as ever, and although these researches have been instrumental in bringing about an improved treatment, it is still in a very imperfect state. Amidst the various duties which devolve upon the physician, he should always keep steadily in view that his mission is the removal of disease and the mitigation of physical suffering. He should ever remember that in the healing art every species of knowledge is subservient to the treatment, and, as this is still so imperfectly understood, it becomes his duty to study the subject with zeal and perseverance.

I have been repeatedly asked how certain agents operate so as to arrest or cure any particular disease? Tell me how opium or quinine realise their well-known effects, and I will answer the query. To say the truth, it

must be acknowledged, that we are almost wholly ignorant as to the mode in which remedial or other agents operate within the human body. Were physicians utilitarians, the experimental treatment of diseases would command more attention in proportion as the *modus operandi* of medicine would be less considered. We attempt explanations, we indulge in theories, but we are unable to proceed to demonstration. The chemist, who regards all changes as due to his art, finds no difficulty in explaining the mysterious processes which take place in the human system; he points out how the aliment taken into the stomach is separated into the elementary matter of which it is composed—how this is distributed, and again variously arranged so as to build up the body in youth, and sustain it through life. He is equally confident as regards the action of remedies; and we might have more faith in his theories were they not frequently opposed to facts.

Take, for instance, a case of acute rheumatism, which admits of cure both by an acid and an alkali—lemon-juice and sesquicarbonate of soda. The facts appear to be so antagonistic.

that with our present knowledge we are at a loss to comprehend the result. Not so the chemist. He finds no difficulty in propounding a theory, which apparently explains the whole matter. It is worthy of consideration how much might have been accomplished, had the subject of treatment been investigated with the same amount of labour and ability as has been bestowed upon the study of pathology. It is true therapeutics have not been entirely neglected. During the period to which I have alluded, two great discoveries connected with treatment have been made—vaccination and ætherisation—but for these we are certainly not indebted to pathology.

Had the treatment of disease been as carefully and assiduously studied as its pathological condition, it would scarcely have remained until this day a disputed question as to which is the best plan of treating cholera. The efficacy of the various methods of treatment, which have been from time to time employed in this disease, would have been thoroughly investigated, so that even if the inquiry had not resulted in the discovery of some specific agent, in which we might place implicit confidence, the

mere fact of having weeded out what was useless, would have been a step in the right direction.

With regard to those diseases which arise out of an infringement of the laws of nature, such as when cold is taken from an improper exposure of the body to the atmosphere, and which generally ends in disorders of the respiratory apparatus; those which grow out of irregularities of diet, and which terminate in derangement of the digestive organs; those which are due to improprieties in physical exertion, engendering lesion of the organs of circulation; those which are caused by irregularities in the function of the brain, whence arise most of the varieties of mental and nervous affections, as well as all those local disturbances, such as fractures, dislocations, sprains, bruises, wounds, burns, scalds, &c. All these diseases and injuries are better treated at the present day than they have ever been; consequently, it is not to be expected that any great advance in their treatment can be made; but with those so-called specific diseases, the case is very different. With rare exceptions, our remedial measures are merely palliative, so

that here the experimental enquirer has a wide field for research.

In reference to this subject, Sydenham* observes, "specific medicines, in the restricted sense of the word, are by no means of every-day occurrence. They do not fall to every man's lot; nevertheless, I have no doubt but out of that abundant plenitude of provision for the preservation of all things, wherewith nature burgeons and overflows (and that under the command of the great and most excellent Creator), provision also has been made for the cure of the more serious diseases which affect humanity, and that near at hand, and in every country. It is to be lamented, indeed, that the nature of plants is not more thoroughly understood by us."

Let any aspirant for medical fame inquire how he is to bring about the cure of such diseases as small-pox, scarlet fever, and measles in less than the ordinary time in which they run their course, he will be told by his teacher, or he may ascertain the fact from books, that they have their unvarying periods of incubation, eruption, climax, and declension, and

* Sydenham, vol. 1, page 22. (Sydenham Society.)

that he will search in vain for the means of neutralising their essence, or of arresting their progress. Let farther inquiry be made into the termination of these affections, and it will be discovered that they are hardly less fatal now than they were centuries ago, and whatever slight advantage may have been gained in the treatment of them in modern times, has arisen more from relieving the diseases with which they have been complicated, than from any actual impression made on the diseases themselves. Hence, if we are ever to arrive at the desirable object of curing these disorders, it must be by other means than those we now possess, as it is evident that such are not at present to be found in our *materia medica*.

If, then, this is so important an inquiry, why has it not been commenced long before this time; indeed, why is it apparently as far off as ever? Had the public considered it a duty or a business of their own, it would have been determined long ago; no doubt the necessity has occurred to many, but it has never been placed properly before the public, or enforced in any way by medical men, so as to command general attention, consequently

the fault must be attributed to ourselves. The extension of life is, doubtless, the greatest desideratum of man, and, happily for society, pioneers are always to be found willing to undertake any means that seems likely to accomplish that end. The labour here indicated is, however, too vast for any single individual to grapple with, no matter how well fitted he may be for the undertaking. To carry this out thoroughly, it must be supported either by Government or by a large society with an hospital appended. It must necessarily involve a series of years, great expense, and no small difficulties in the inquiry, and probably, after all, would be considered by many a useless expenditure of labour.

I remember a learned and accomplished physician, the late Dr. Gregory, observing to me that "phthisis was not only an incurable disorder, but would always remain so—that it was one of the ways the Almighty had taken to destroy a portion of the human race." Had the immortal Jenner held a similar doctrine, it is probable that we should have been deprived of the blessings of vaccination. The labourers in this department have

generally been regarded as mere visionaries, and ridicule instead of encouragement has been heaped upon them. This is not altogether to be wondered at, when we remember the promises held out by discoverers, which too often fail to be realised. The fear of losing the credit of the discovery often leads to unnecessary haste in coming before the public. Nor must we forget that diseases are not only more amenable to treatment at one season than another, but also in one year than in another.

However some persons may sneer at specifics, it is quite evident that to such agents we must look for the cure of these diseases; and, unless it is the result of accident, the discovery of these specifics (if they exist) must emanate from the source to which I have referred. Indeed, most practitioners, if they will make the inquiry, will find that they are more or less influenced by specifics in their treatment. They all have their favourite remedies, and why? Because they believe they can depend upon them for producing certain effects. And the medical men whose intelligence and experience enable them to select these effective

agents—presuming the nature of the disease is understood—will make the most skilful and successful practitioners. One of the causes why the noble science of medicine is disfigured by so many excrescences originates in the want of more remedies of this nature.

Such reflections as the foregoing have frequently occurred to me, in consequence of having been engaged for many years in ascertaining the value of untried agents in several diseases, which are known to be but little affected by any mode of treatment. In such disorders the physician will frequently be found to treat the complications from the symptoms only.

Take, for instance, a case of hooping cough, which occurred in a child three years old. Slight cough was first observed three weeks ago, which gradually increased until it became paroxysmal and suffocative, and finally ended in a hoop. During the last few days the child has been feverish—the sleep broken every half-hour by cough—breathing hurried, with much wheezing—the food is quickly rejected after a severe fit of coughing, and the medical attendant is hastily summoned, in

consequence of an attack of convulsions. Possibly, the nervous affection and the bronchitis yield to judicious treatment, but the primary and specific disease he is unable to remove, and it remains until it wears itself out, in the course of six, eight, or ten weeks. For although every practitioner has a specific for hooping-cough, none appears to have answered the purpose. I have been daily occupied with the experimental treatment of this disease during the last seven years, and have preserved notes of between three and four thousand cases.

About eleven years ago I introduced to the profession, through the medium of the *Lancet*, the treatment of consumption by naphtha or pyroxilic spirit, which was attended with much success; but whether this arose from some peculiarity in the constitution of that year, making it more particularly adapted for the treatment of phthisis, I am unable to determine. But this I do know, that my subsequent success has not equalled that which attended the first year of its trial. Great difficulty has always been experienced in procuring the *medicinal* spirit. Chemists have been divided in opi-

nion as to its exact nature, no two of them manufacturing the article alike; and this, no doubt, has been a serious obstacle to its efficacy as a remedial agent.

During the last few years its stimulating properties have become more manifest than formerly. In my early use of it, I could venture to leave the cases for two or three weeks unseen; but, latterly, I have been unable to do so, in consequence of the excitement which it not unfrequently occasioned, and which necessitated its employment being withheld, otherwise its good effects speedily vanished, and mischief was the immediate result. This I have attributed to some change in the nature of the spirit, and though several able chemists have endeavoured to prepare it in a more careful manner, the difficulty still remains to be overcome.

So extraordinary were its effects in my hands, curing, as it has done, cases in every stage of the disease, that for some time I regarded it almost as a specific in phthisis, and I was supported in this opinion by the independent testimony of others. I still, however, consider it as one of the most valuable agents we pos-

sess in the treatment of this affection, when carefully and skilfully employed; but, unlike cod-liver oil, where it does no good, it generally does harm. Although it has not been admitted, as one of the physicians of the Hospital for Consumption said it would, into every pharmacopœia in Europe, Ireland, nevertheless, has borne testimony to its virtues, by introducing it into hers.

I was, however, at no time so satisfied with it, as to suspend that spirit of inquiry which led me to ascertain the virtues of such untried agents in this disorder as opportunity afforded. Among them, I found the bisulphuret of carbon one of the most valuable, and this I have been in the habit of employing for several years. It will be found particularly useful in those cases in which the naphtha, from its stimulating qualities, is contraindicated. It relieves the cough, renders expectoration easy, and checks the diarrhœa better than any other medicine with which I was then acquainted; without disturbing the functions of any of the organs of the body, it improves the health generally, and not unfrequently arrests for a time the progress of the disease, and in rare

cases, where the deposit of tubercle is small, it effects a cure. In consequence of its checking the diarrhœa in phthisis, I was induced to employ it in the cholera which invaded London in 1849, and it proved to be exceedingly useful at that time.* The bisulphuret of carbon possesses the remarkable property of rapidly dissolving phosphorus, which afforded me an opportunity of testing the value of the latter in phthisis. In a few cases it evinced a remarkable power over the disease; but its action on the heart was frequently so highly irritating—not only quickening its contractility, and sometimes occasioning palpitation, but also giving rise to pain and oppression in the cardiac region—that after trying it in various doses, and at different intervals, I was compelled to lay it aside.

Those alone who have been engaged in experiments of this nature, can fully appreciate the despondency which is sometimes experienced from repeated failures, some of these investigations occupying even months in

* On the use of the Bisulphuret of Carbon in Cholera, extracted from the *Medical Times*, Oct. 16, 1849, by John Hastings, M.D.

the mere endeavour to ascertain the uselessness of the remedies tried. The Profession, as a body, I fear, have little sympathy with such labours, and regard them much in the same light as the search after the philosopher's stone, especially with regard to phthisis, believing in the occasional cure only of that disease, and even then attributing the result to some mysterious process of nature alone. Through various disappointments, I have been buoyed up with the hope that some agent more valuable than any yet discovered would at length reward my investigations, and I entertained this opinion chiefly on the following grounds:—I was satisfied of the curability of the disease by treatment, both in my own hands and in those of others, and in two cases, where death occurred suddenly whilst under treatment, I had the opportunity of seeing some cavities already cicatrised, and others undergoing the healing process. And, although it has been observed by Sydenham,* that "medicines which *specifically* answer to the indications of treatment, and medicines that *specifically* cure diseases, are as wide

* Vol. 1, page 22. Sydenham Society.

as the poles asunder," nevertheless, I have generally given the preference to those agents which contain some element, found in the blood of man, independently of carbon, hydrogen, oxygen, and nitrogen.

No part of the history of phthisis is so interesting, or will so amply repay inquiry, as that which embraces the question of its cure. When I first wrote upon this subject, the word "cure," as applied to this disease, was looked upon as a dishonest term, and its curability was regarded as an heretical doctrine; but now, thanks to science and the liberality of the advanced party in medicine, we may venture to speak about the curing of consumption without being looked upon as visionaries, or worse.

Professor Bennett, of Edinburgh, when pathologist to the Royal Infirmary, frequently pointed out, in the numerous *post-mortem* examinations he made in that hospital, many cicatrices of tubercular cavities in the lungs. In his work on "Pulmonary Tuberculosis" (p. 33), he makes the following remarks:— "Cicatrices present different appearances, according as the cavities from which they were

formed have been superficial or deep seated. In the first case it will generally be observed that the pleuræ are more or less adherent and thickened, and this frequently forms an external boundary to the tubercular cavity. As the matters which the cavity contains are expectorated or transformed, the lymph gradually contracts, draws the lung closely to the thoracic walls, from which it cannot be separated without great violence. Sometimes, however, it is deeper, and the adhesion is very slight, or does not exist. In this case, when the walls of the cavern contract, the pleural surface of the lung is drawn inwards, and in this way the irregular puckerings visible on the surface are produced.

"Occasionally no traces of tubercular matter are discovered, either within or in the vicinity of these cicatrices. Under such circumstances they appear to be formed of dense fibrous tissue, and the parenchymatous substance in their vicinity is of a bluish-black colour, from increased pigmentary deposit, and of peculiar induration and density, owing to chronic exudation. More generally, however, the contraction and puckering will be found

to have occurred around tubercle which has undergone various transformations. Occasionally there are round masses of crude tubercle surrounded by a cyst. They are of unusual density, still of a yellowish colour; but contain granules of earthy salts more or less numerous. Often they are white and friable, resembling chalky matter. In this state the soft portions have been apparently absorbed, and the whole consists, under the microscope, of irregular masses of earthy matter, mixed with numerous granules and crystals of cholesterine. At other times the whole has been converted into a solid calcareous mass, frequently round, at others having numerous prolongations and irregularities, which accurately fit the surface and bronchi with which they are in contact. These cretaceous and calcareous concretions may remain an indefinite time in the parenchymatous substance of the lungs, or they may be evacuated through the bronchi with the sputa. The cyst which incloses them then forms a dense linear cicatrix."

Rokitansky* also observes:—"Tuberculous

* A Manual of Pathological Anatomy, by Carl Rokitansky, M.D. Sydenham Society, pp. 118—120.

pulmonary consumption is unquestionably *curable*, as we may infer from the appearances not unfrequently observed in the dead bodies of persons who formerly had more or less suspicious thoracic affections, and subsequently recovered. It is only by the investigation of the conditions under which these natural cures take place, that we can hope to arrive at a truly rational mode of treatment. . . . If the abscess be not too large, it closes by a gradual approximation of its walls, which finally come in contact and coalesce. We then find in place of the previous cavern, a cellulo-fibrous stripe, in which the bronchi end in blood sacs."

Puckerings of the lung, and depressions of the thorax, he observes, correspond with the situation of the healed cavity. "When the healing process is rapid and continuous, the cicatrix sometimes incloses chalky concretions of various sizes, formed by the inspissation of tuberculous pus in the cavity." Again, "the cavern may be filled up with a roundish or irregularly branched mass of fibro-cartilaginous structure, in which the bronchi terminate in blind sacs. This may be converted into a

compact osseous concretion of corresponding form and size." In other cases pulmonary tubercles diminish in volume, and become cretified—tuberculised infiltration undergoes a similar change. Finally, "pulmonary tubercle, when *in the form of crude grey granulations, may become obsolete*, shrivelled up, and abortive." Had the same industry been employed in the numerous hospitals throughout the rest of Europe, as has been displayed at Edinburgh and Vienna, the mass of evidence collected would have been so great, that every medical teacher must have acknowledged to his class, that nature, in many instances, does cure consumption; and the knowledge of this fact alone would have imparted consolation to many a suffering invalid. Pneumonia I believe to be a more fatal disease than consumption, yet where is the person who would not rather labour under the former than the latter, owing to the belief that this disorder is necessarily invariably fatal? Let us inquire into the causes of this opinion.

Not more than thirty-five years have elapsed since the discovery of the stethoscope was

made, and before that time the means of diagnosing phthisis were so imperfect, that the cures related by physicians, who lived prior to that period, are doubted. The almost universal failure of specifics in this affection, the constant promulgation of the doctrine in the medical schools that it was incapable of cure, and the frequent demonstration of this fact in the fatal termination of a large number of cases, tended in no slight degree to establish this opinion not only in the minds of medical men, but in those of mankind generally, who constantly believed—not perhaps without some show of reason—that those cases which ended in death were phthisis, and those which recovered were not—simply because they did not end fatally.

When a cure took place, it generally happened in young and middle-aged persons, who living twenty or thirty years afterwards, were at their deaths no longer objects of interest to their medical attendants, who might believe that they had committed errors in diagnosis, and, consequently, thought it unnecessary to seek for evidence of that disease of the lungs,

whose existence they now doubted. The following case illustrates this point:—

Case I.

Cavities in the Apex of both Lungs—Restoration to Health—Sudden Death in consequence of an Attack of Pneumonia—Post-mortem Examination reveals the Cicatrisation of Cavities.

Mr. ——, ætat. twenty-three years, born in Warwickshire, of a healthy family, resided in Clapham. He was a temperate man, and had always enjoyed good health until the autumn of 1845, when a slight attack of hæmoptysis took place, followed by cough, expectoration, difficulty of breathing, relaxation of the bowels, night perspiration, and wasting. He first consulted me on August 3rd, 1846. He was then labouring under the above symptoms. His pulse was 100; respiration, 24; weight, 9st. 8lb.; height, 5ft. 7½in.; expansion was deficient on both sides, but more so below the left clavicle than the right; percussion elicited a dull sound at the upper part of the right scapular, and also below the left clavicle, where a gurgling râle was heard with cavernous cough and voice. For many months he

consulted me once or twice a-week. The remedies employed were principally naphtha and cod-liver oil. He gradually and steadily improved, the physical signs of cavity disappeared, and he considered himself, as I did also, in the summer of 1847, nearly well.

However, on the 18th of September I was summoned to his house, in consequence of his being alarmingly ill. I met Mr. Taylor, of Clapham-common, in consultation, from whom I learned, that a few days before, he had got wet through on horseback, and the present symptoms shortly afterwards appeared, viz., an attack of hæmoptysis, attended with much difficulty of breathing; for which the usual treatment was prescribed, and that before I saw him the hæmoptysis was nearly arrested. Percussion elicited a dull sound below the left clavicle to a considerable extent with tubular respiration; the back of the right lung was dull on percussion, accompanied by extensive small crepitation on inspiration. Cupping, leeches, blisters, and calomel and opium were had recourse to; but he died on the following day.

Mr. Taylor made an examination of the

thorax about twenty-four hours after death, a which I was present. The body was well developed, there was a good supply of adipose tissue and the muscles of the chest were of a healthy colour; considerable adhesions existed abou the apex of both lungs, with numerous puckerings, which, on being cut into, exhibited several cicatrices of cavities, with others partially healed, and a few scattered tubercles This was observed in the left lung, where I had diagnosed a cavity the previous year. Al the lower part of the right lung was solidified the source of the hæmoptysis was not discovered; neither did we make very minute search for it, as our interest was so much absorbed by the extraordinary condition of the lungs.

The engraving exhibits two portions of lung removed from this man's chest, undergoing the healing process. This case is extremely interesting, from death taking place suddenly, in consequence of a severe and extensive attack of inflammation of the lungs, which destroyed the patient in a few days, when he was on the point of recovery from consumption.

Post-mortem examinations prove that nature not unfrequently cures phthisis. Let us, therefore, enquire whether there is not sufficient evidence to show that the disease is more frequently cured than most persons are disposed to imagine. Phthisis, no doubt, has been cured in all ages, but as it has always been believed to be an incurable disease, the cases which recovered were invariably considered as mere instances of chronic catarrh. But of late years, since our diagnosis has become more perfect, and our treatment improved, the opinion has been gaining ground that it is not necessarily a fatal disease, and I hope I have contributed towards establishing this desirable conclusion. In every other disorder the application of scientific knowledge to practical therapeutics assists the efforts of Nature, and effects cures more rapidly, and in greater numbers.

In most cases where tubercles have been observed in the lungs of persons who have died from other causes, they have been found too scanty and scattered to give rise to congestion of the lungs in their vicinity, and in those cases where cavities have been found

after death under similar circumstances, the neighbouring lung has looked as pale and healthy as lungs unaffected by any pulmonary disorder. Hence it would appear that in the cures effected by Nature, so small is the extent of the disease that the function of the lungs is not perceptibly impaired by the presence of the tubercles, and they remain for an indefinite period undergoing but little change, or they pass through a series of stages, with various terminations (as described by Bennett and Rokitansky), and the cavity which they often give rise to finally cicatrises, without the existence of either the former or the latter being detected.

At one end of the series are the instances of which I have just spoken, as the cures of Nature; at the other are the incurable cases of acute phthisis. Between these extremes are those numerous modifications of the disease which range from the case that readily admits of treatment to that where the art of the physician is of little avail. One step beyond the first class are those in which the deposit of tubercle is of somewhat greater extent, and sufficient to give rise to slight

pulmonary congestion, yet enough to induce the sufferer to apply to his physician for relief. Such cases were commonly cured, and considered as examples of bronchitis or catarrh, long before the stethoscope and cod-liver oil were discovered. Farther on in the series, cures have been performed with more and more difficulty, until at length acute phthisis, the last link in the chain, is reached. In all cases except the last, instances of recovery, at various times, have been recorded. The following is a good example of the cure of a severe and far advanced case of phthisis, extracted from Dr. Bennett's recent work* on this subject:—

Advanced Pulmonary Tuberculosis, 1842; *A Large Cavity in the Apex of Right Lung, and Condensation in the Apex of Left Lung, with all the Phthisical Symptoms, including repeated Hæmoptysis, in* 1843; *Arrestment of the Disease, and complete Recovery in* 1846; *Health remains good*, 1853.

A medical student requested me to examine his chest, in the autumn of 1842. He was tall, thin, and sallow, aged twenty, with frequent cough, accompanied by purulent expectoration. On percussion, there was marked

* Bennett on Pulmonary Tuberculosis, 1853. Page 93, *et seq.*

dulness on the right side, beneath the clavicle. On listening in this situation, a loud mucous râle accompanied the inspiratory murmur, and there was loud bronchophony. On the left side the inspiratory murmur was harsh, the expiratory murmur prolonged, but no increased vocal resonance could be detected, and no dulness on percussion. I ascertained that his illness had been progressing slowly for at least several months, that he had latterly become much emaciated, that there was considerable perspiration at night, that his appetite had been very capricious, but was now good, and that there had been no diarrhœa. The pulse was quick, the tongue furred, and he complained of slight thirst. I learnt from his friends, however, that his appetite was wretched, and that it was very seldom that he could be brought to eat any animal food whatever. This young man, therefore, had a considerable amount of tubercular exudation in the apex of the right lung, which was softening, and a much slighter amount of it in the apex of the left lung, which was still crude. I prescribed a tablespoonful of cod-liver oil three times a day, and good diet. I

told him to clothe himself well, avoid sudden changes of temperature and exposure to cold, and during the winter months to confine himself to his room, the temperature of which was to be regulated between fifty and sixty degrees.

I saw him occasionally during the winter of 1842-3, during which period it became necessary to suspend the use of the oil every now and then, on account of the nausea it occasioned. His health and strength, however, greatly improved, and the moist râles entirely disappeared, although he continued to expectorate a small quantity of viscous purulent matter. It was with the utmost difficulty he could be confined to his apartment, and it at length became so irksome, that he went out without my knowledge. At first he used considerable caution, and no ill effect arose ; but, in May, 1843, I was summoned to him in great haste. He had spent the previous evening with some companions, and drank more than usual, and walked home past midnight, the weather being rather chilly. I found the cheeks flushed, strong febrile symptoms, laborious breathing ; and, on auscultation, loud

crepitating, passing into mucous râles, were heard over the upper third of right side, with the same dulness on percussion as formerly. I prescribed quietude, with tartar-emetic and opium in large doses, frequently repeated. In a few days the fever had left him, but the moist râles in the right lung continued; the expectoration was again copious, the sweating at night had returned, and there was an unconquerable repugnance to every kind of food. Various means were tried to diminish the irritability of the stomach—effervescing powders, hydrocyanic acid, creosote, various anodynes, stimulants, alkalies, and bitters—but without avail. In June he was reduced to a condition much worse than when I at first saw him, and was once more greatly emaciated, and so weak that he could not stand five minutes, without enduring great fatigue. I now ventured to prescribe the oil again, in teaspoonful doses, combined with a drop of the oil of cloves, three times a day. It was retained on the stomach, and was taken regularly for two weeks, at the end of which period he had greatly improved. After a time the dose was increased to a tablespoonful twice, and then

three times a day. In August, all moist râles had disappeared, and were replaced by a distant blowing murmur, with loud bronchophony. The apex of the left lung fortunately had undergone no change since I first examined it. He was now able to walk, his strength having been much restored; and I informed him of the critical position in which he was, and impressed upon him the necessity of great caution. He seemed thoroughly roused to a sense of his danger, and left Edinburgh to see his friends in the country.

In November, 1843, he returned to continue his studies in the University. With the exception of being somewhat stronger, and in better spirits, he was in much the same condition as when I last saw him. The problem now was, how to get him over the ensuing winter. I was in hopes that, if, during the next six months, no fresh exudations occurred, and the cavity or cavities in the right lung remained dry, they might ultimately cicatrise. I, therefore, advised him not to attend classes at all, and make up his mind to remain in his own lodgings, which were to be chosen especially for the purpose, and kept at an

equable temperature. Accordingly, when the weather became cold—which, however, was not until January—he remained at home, and although the confinement was exceedingly irksome, he bore it with great resolution. It was about this period I first noticed strong friction or creaking murmurs at the apex of the right lung, which indicated that the pleuræ in that situation were greatly affected.

Matters remained in this condition until February 1844; I every day expecting that he would break from his confinement, or commit some imprudence which would induce fresh exudation in the lung. At this time I was sent for late at night, and found him greatly alarmed. In the course of an hour he had spat up about a pint of florid blood, and when I saw him he was coughing violently, and expectorating frothy mucus, deeply tinged of a red colour. I advised him to restrain the cough and efforts at expectoration. I sat with him some time, his excitement gradually diminished, and the cough and hæmoptysis ceased. He told me that for some days he had experienced considerable tightness and a sense of constriction in the upper and right part of his

chest. On asking him whether this continued, I ascertained that it had completely disappeared. On auscultation, I heard loud friction râles, like the creaking of leather, over the apex of right lung. The inspiration was accompanied by a hoarse blowing murmur. The expiration prolonged; and there was the same loud bronchophony. Sounds over left lung the same as formerly. It was evident to me, from this examination, that the cavity was contracting; that in doing so, some blood-vessels had been ruptured, and that much was now to be feared from repeated attacks of hæmoptysis. For a period of four months, indeed, he now had occasional returns of spitting of blood, varying in quantity, but rarely exceeding three ounces in amount, and sometimes only slightly tinging the sputa. He was treated at these times by means of quietude, opiates, and acetate of lead, none of which, however, appeared to me to have any counteracting effect, as the hæmoptysis was evidently the result of changes in the lung, in connexion with the contraction of the tubercular ulcers. He always felt more or less constriction in the chest before any considerable

hæmorrhage, which was invariably relieved by it. Occasionally, also, he experienced considerable dyspnœa, and an intense longing for fresh air. On one of these occasions, in April, he rushed out of his lodgings, and walked rapidly on the Calton Hill, when he found the dyspnœa left him. He insisted on repeating this on similar occasions, and he assured me it always produced the desired effect. As the season advanced, he prolonged his walks. A very common one with him was to the summit of Arthur's Seat, and in June all hæmoptysis and dyspnœa left him. He recommenced his studies also in the University at the commencement of the summer session in May.

At the end of July, I again carefully examined his chest. Although dulness under the right clavicle still continued, I was satisfied it was not so intense as formerly. On auscultation, there were loud friction noises, which completely masked the respiratory murmurs. The vocal resonance continued. On the left side there was still slight roughness of the inspiration, and prolongation of the expiration, but nothing more. His general health, though far from good, was much improved. He was

still pale and thin. There was occasionally cough and tough expectoration. The appetite, he said, was good, and the bowels regular. I again cautioned him to avoid all exposure to cold and damp—to live well—to take exercise—and apply occasional counter-irritation to his chest, and he left Edinburgh for the autumnal recess.

In November, 1844, he returned to Edinburgh. He was greatly improved in appearance, and described himself as being much stronger. During the holidays he had used horse exercise frequently, and been much in the open air. There was still occasional cough and tough expectoration, not tinged with blood. The physical signs were much the same as when I last saw him, although the intensity of the friction murmurs had somewhat diminished. He positively refused to confine himself the next winter as he had done the last, being convinced that he could not breathe the confined air of a chamber without injury; and it was with some difficulty that I obtained a promise from him not to go out during wet, or unusually severe cold weather. Every other precaution to avoid

exposure to cold, and all exciting causes of exudation, was to be carefully observed. He attended his classes regularly for six weeks, when, owing to the weather, he lost several lectures. This caused him great annoyance, —the more so, as he intended to present himself for examination in the spring.

About the middle of January, 1845, he sent for me. I found him with the face flushed, skin hot, rapid pulse, coughing violently, and expectorating a muco-purulent matter, tinged of a rusty colour. On listening over the apex of the right lung, there were heard crepitating and mucous râles, mingled with friction murmurs similar to those which formerly existed. The rest of the lung was free. The apex of left lung was not affected. It was clear that a new attack of pulmonary congestion and exudation had taken place. He confessed that he had been very unwilling to send for me; that he had felt himself getting worse for the last week, and was conscious that the attack had been occasioned by his persistence in attending classes, and sitting so many hours probably in damp clothes and wet boots. The same treatment as was adopted on a former

occasion was again put in force — quietude, with tartar-emetic and opium. In a week, the febrile symptoms had much abated, but the pulse continued quick; the appetite was destroyed, and his strength was again much reduced. All attempts to eat occasioned nausea and disgust—he could take no animal food. The tongue was loaded, and there were almost continued acid eructations. I ordered tartar-emetic ointment to the chest; and, instead of the tartar-emetic and opium internally, prescribed gr. viii. of carbonate of magnesia, with ℈j. of sal volatile, to be taken three times a day in a bitter infusion. Three days afterwards, I was much alarmed at the occurrence of diarrhœa for the first time, which continued two days, and evidently diminished his strength. Fortunately it ceased on suspending the mixture, and giving aromatic and astringent powders, with a quarter of a grain of powdered opium. In the beginning of February my patient was once again reduced to nearly the same condition that he had presented three years previously. I was encouraged, however, on listening to his chest, by hearing only the friction and dry cavernous râles at the apex of

the right lung. The crepitation had disappeared, and occasional mucous râle was heard about the middle of the right back. I made every effort now to re-establish the appetite, and introduce nourishment. Solid animal food and cod-liver oil were immediately vomited. All that he could retain in the stomach was a little rice pudding and milk. It was evident to me that unless the stomach could be quieted and rendered capable of digestion, he must sink. For two days I tried small doses of liquor potassæ and vegetable bitters, with effervescing draughts. I then gave a teaspoonful of cod-liver oil, but it caused insupportable nausea, and was vomited several times, although mixed with several essential oils in succession. The oil was therefore suspended, and ten drops of naphtha, with ℥j. of tincture of cardamoms in ℥j. of infusion of Colomba, given three times a day. This medicine evidently checked the tendency to nausea and vomiting, and after continuing it three days, the cod-liver oil was again tried, and was now retained in teaspoonful doses. During the next fortnight it was found necessary to suspend the oil on two separate occa-

sions, and to have recourse to the naphtha mixture. At the end of that time, however, he took it in dessert-spoonful doses, and from this period he once more began to recover.

It is unnecessary to record all the successive steps his improvement presented. In April he could again sit up, and at this time was taking four tablespoonfuls of the oil daily. At the end of that month he went out, and commenced taking gentle exercise whenever the the weather permitted; and in May he was in much the same condition as at the commencement of the winter session. On examining his chest, I now noticed marked flattening under the right clavicle. All moist râles had disappeared. Friction râles could only be heard at the end of a deep inspiration—there was loud bronchophony, and considerable dulness on percussion.

During the summer session he attended his classes with tolerable regularity, and prepared himself for his examination. On this subject he was very anxious; indeed much more so, it appeared to me, than he was with respect to his health. Seeing now his anxiety on this subject, I also became desirous that his mind

should be relieved. He accordingly left Edinburgh about the end of July for London, where shortly after he passed the examinations at the College of Surgeons and at Apothecaries' Hall. On the approach of winter he wrote to me, saying that he was much better, and that he intended passing the winter with some relations in the West of England. He seemed to be impressed with the importance of avoiding every cause which could again excite a fresh pulmonary attack, and promised implicit obedience to my oft-repeated instructions. I heard from him from time to time, and he passed through the winter without accident.

It was in London, during August, 1846, that I once more examined my patient's chest. There was still marked dulness under the right clavicle, but it was by no means so deep or so extensive as formerly. There was a considerable coarse murmur during inspiration, but the blowing character had disappeared. The expiration was prolonged, and accompanied by a sibilant murmur. The vocal resonance was greatly increased. He was still pale and thin, but capable of taking considerable exercise. Every now and then he felt

constriction in the right chest, which was removed by exercise in the open air. There was also occasional cough, but no expectoration. He gave me three cretaceous concretions, about the size of large pins' heads, which he had passed up the previous spring. He lived on the plainest animal food, and drank nothing but milk and water. His appetite had of late considerably improved, and he was now free from all dyspeptic symptoms. He had continued to take three tablespoonfuls of the oil daily up to a late period. I recommended his taking two tablespoonfuls of the following mixture three times a day :—℞ Ferri Citratis, ℈ij. : Syr. Aurantii, Tr. Card. c. aa. ℥j. ; Inf. Colombæ, ℥iv. M.

He now established himself as a general practitioner in one of the midland counties of England, where he has been practising ever since. In the autumn of 1849 I again saw him. His appearance then and now is robust. He takes considerable exercise daily. There is no cough or expectoration. There is considerable flattening of the chest below the right clavicle ; but he inspires freely, and without difficulty. On percussion the sound

is still dull, but much less so, and more limited in extent, than formerly. On auscultation, there is almost complete absence of respiratory murmurs at the apex of lung, but a little lower down there is prolonged expiration, which is gradually lost in the healthy breath sounds. There is great increase of vocal resonance, probably owing in part to the density of the adhesions, and in part to the condensation and puckering of the lung. The left lung is healthy. He took the chalybeate and bitter mixture for some time with marked advantage. He found the appetite improve and his strength increase. At present he takes no medicine, eats heartily, and drinks only mi k and water. His age is now thirty-one."

From the facts which have just been stated, the conclusion may be fairly drawn that consumption is more frequently cured than is generally believed. Before proceeding farther, it will be necessary to state generally, that each case of phthisis must in regard to treatment be investigated separately, as the extent of the deposit, stage and complications of the disease, will direct us in the application of our

remedies. The amount of the primary tuberculous deposit will have a considerable influence on the prognosis, as that bears an exact relation to the constitutional taint, and it must be removed before a cure can be accomplished. Where there is a want of expansion over the superior part of the right or left side of the throat, where a dull sound follows percussion, and where the stethoscope elicits a harsh bronchial murmur, as well as an increased tussive vocal and cardiac resonance, accompanied by a dry cough, or where there may be a little semi-transparent mucus brought up, with the circulation quickened, the appetite capricious, the bowels alternately relaxed and confined, accompanied by frequent night perspirations and emaciation, we may diagnose a deposit of tubercle in the upper part of the right or left lung, accompanied by congestion of the neighbouring tissue.

Now this congestion, which generally accompanies phthisis, is one of its most formidable conditions, both in the early as well as in the last stages of the disease. It appears to be the immediate cause of the deposit, and one that most frequently gives rise to hæmoptysis.

"Chronic tuberculosis either deposits its products imperceptibly, or else as crises of a *mild general disease, with symptoms of moderate vascular excitement, and recurring at intervals.*"* At the outset this congestion probably arises from a want of tone in the pulmonary capillaries, occasioned by the constitutional disorder, and kept up by the mechanical impediment which the tubercles must offer to the circulation in the neighbouring blood-vessels.

These swollen canals compress the adjacent air-cells on all sides, and thus not only abridge their space, but in some instances must entirely close them against the admission of air. Partly by these means and partly by the exudation from the engorged capillaries, the light spongy tissue of the lung is rendered almost as dense as that of the liver, and hence arises the dull sound in early phthisis. The sputa brought up in such cases appears to arise from the congestion, since it cannot proceed from the tubercles, nor can it, as we know, be the secretion from the bronchial tubes, as that differs considerably from the secretion of early

* A Manual of Pathological Anatomy, by Carl Rokitansky, M.D. Sydenham Society, p. 121.

phthisis. Hence it must exude from the turgid capillaries, inasmuch as when they are obstructed in other parts of the body, the thinner portion of their contents escapes from their sides. In those cases where the disease has advanced to the stage of excavation, congestion is generally found to be more or less present, and it is in this condition that the latest crop of tubercles is met with. Where the disease has been closely watched, and recoveries have taken place, there has always been observed a disappearance of all moist sound.

The congestion being removed, the secretion diminishes, and finally disappears; the dulness becomes less perceptible on percussion, and the cavities can no longer be detected. Much has been written about the pneumonia and intercurrent pneumonia of phthisis, but I believe inflammation of the lungs to be no ordinary complication. As an idiopathic affection it requires a considerable time for its removal; but in these cases, it disappears in three or four days, and not unfrequently in a shorter time, whilst it very rarely terminates fatally. Although I am far from denying the occasional presence of inflammation in such cases, I feel

confident, that it is generally neither more nor less than congestion, and we must consequently direct our careful and close attention to this.

It seems to be a necessary condition of the pulmonary tissue before a deposit of tubercle can take place, and consequently unless it can be removed, and its recurrence prevented, there will be no rational prospect of recovery. In those cases where relapses occur, they are owing to a renewal of the congestion, and as each of these intercurrent attacks becomes more difficult of removal than its predecessor, the prevention of their recurrence should be an object of even greater importance than their cure, if, as there is good reason to believe, tubercles are never deposited but during the continuance of the congestion. At all events, we meet with none, or scarcely any, in those cases which are cured by Nature; and if this is the plan which she always adopts to cure the disease, surely a better mode cannot be employed by those whose duty it is to assist her efforts. If a recurrence of the congestion is prevented after the primary deposit has taken place, it is

hoped that the case may be brought to a successful issue, either by the tubercles passing through a series of changes terminating in the cicatrisation of the cavity they gave rise to, or by their remaining imbedded in the lungs undergoing but little change, and giving rise to no pulmonary derangement.

We have the best evidence—obtained by examination after death—that Nature frequently adopts both these methods for relieving the lungs of this disease. When the congestion has been removed from the neighbourhood of a crop of tubercles, expansion is often observed to become somewhat free over their seat, — the dull sound less marked—and the harsh respiratory murmur of a healthier character, while at the same time the cough and expectoration diminish—the circulation becomes slower—the appetite better—the bowels regular—and night sweats disappear altogether. There is in all such cases a great liability to relapse, in consequence of the patient believing that he has regained his health, and that there is no longer any necessity for treatment. Such cases are of daily occurrence, and are amenable to

treatment in the first instance, but subsequently are no longer so, from the carelessness of the patients themselves; this, I fear, is a difficulty not easily to be overcome.

The treatment of this disease has engrossed a large share of attention from a very early period. Various modes and systems of treatment, both antiphlogistic and stimulating, have had their day, together with a variety of specifics; amongst the latter are naphtha, and cod-liver oil, whilst every kind of climate has been fashionable in turn; nevertheless, the disease stalks through the land, causing about the same amount of mortality as it did a century ago. Every one is cognisant of the great value of cod-liver oil in phthisis, and whatever its merits may be, and they are great, the credit of its introduction into this country, for the treatment of consumption, entirely belongs to Professor Bennett, of Edinburgh.* So popular

* The author well recollects how Dr. Bennett's work, recommending the general use of cod-liver oil in phthisis, published in 1839, was sneered down by several members of the Profession in high station, who have since adopted the remedy, and been the loudest in its praises. But such is life! "humanum est errare."

has this agent become in the treatment of phthisis, that scarcely a recovery or a death from consumption during the last few years can be cited, in which the patient had not previously undergone a course of treatment with cod-liver oil.

My object, however, in writing again on this disease, is to introduce to the notice of the Profession two new agents, which, I believe, have enabled me to advance still farther the curative treatment of phthisis.

CHAPTER II.

TREATMENT.

About three years ago I commenced the use of several untried acids in phthisis. The first that appeared to manifest a favourable influence upon the disease was the fluoric, administered in doses of half a drop to a drop, three times a day, in distilled water, with a little syrup of poppies. For a certain time it promised to be extremely beneficial in relieving the cough and difficulty of breathing, diminishing the expectoration, reducing the circulation, and developing a feeling of comfort. But this satisfactory state was of short duration, for in the course of a day or two it would be succeeded by headache, distressing sickness, with or without diarrhœa, and general uneasiness. Such was the usual result of my early trials with this acid, which I have since discovered to be so eminently useful in phthisis.

Unfortunately, when I first employed this agent in consumption, I was at the same time testing its powers in hooping cough, by applying it to the larynx internally. The strength I then used was one part of acid to seven of water, and unless this was daily renewed it rapidly diminished in strength, in consequence of the acid combining with the silica of the bottle which contained it. This led me to apprehend that the same depreciation in strength would happen when it was prescribed in a mixture sufficient for a week's consumption, and that before the last dose was taken it would contain little else but water. And, as the patients were not in a situation of life to procure fresh supplies daily, I unfortunately discontinued the investigation, but at the same time determined to give it a more complete trial if a favourable opportunity occurred: for, although, at that time, the real value of this agent was unknown to me, I observed enough of its effects to convince me that, if it could be rendered more manageable, it would prove a valuable addition to our remedies in the treatment of consumption.

But the circumstance which I have stated

above was an untoward one, for it put a stop to any farther experiments with this acid for upwards of two years, and would probably have done so for a much longer period, had it not been for my accidentally observing, a few months ago, that when fluoric acid was very much diluted with water, its effect on glass was not sufficient to weaken its acidity so as to be perceptible to the taste. This at once induced me to enter upon another series of experiments with it in consumption.

The dose with which I recommenced my investigation, was the 1-24th part of a drop, and small as this was, I was not long in doubt as to its beneficial action—since marked improvement repeatedly followed from a few days to a week's perseverance in its use. The majority of cases made more rapid progress under larger doses—1-12th to 1-8th of a drop, beyond which I have not yet found it necessary to advance. In one case where 1-8th of a drop, and in another, where 1-24th was being taken three times a-day, I was obliged to withdraw it in consequence of the sickness which followed its employment, but its good effects were in most instances persistent, as will be shown by the cases subjoined.

I have employed it in every stage of phthisis with most satisfactory results; but I do not consider that it has yet had a sufficient trial to justify me in stating that it is equal to a thorough and complete removal of the disease from the system. This, however, I may add, that it removes the congestion from the neighbourhood of the tubercles in a more effectual manner than any other remedial agent with which I am acquainted.

This acid, so far as my inquiries have hitherto gone, has not been used before in medicine; in truth, the fact of its being extremely corrosive and destructive to glass, is I believe, the reason for its having been so passed over. When, however, it is remembered that it contains fluorine, one of the elements of the human body, it is indeed wonderful that it should not have been previously used in the treatment of consumption. Although, however, it may be administered with benefit in every stage of the disease, it seems to act more promptly in that where cavities exist, especially when it has been preceded by another acid about to be noticed.

Several months ago I examined, in con-

nexion with this disease, the properties of another acid which appears to have escaped the notice of almost every medical inquirer. The acid referred to is the oxalic. Thompson, in a very cursory notice of it, in his "Materia Medica," says it was formerly employed as a refrigerant. The "Dictionnaire des Sciences Médicales," Paris, 1828, also states that it has been employed as a refrigerant in small doses, but recommends that tartaric acid should be used instead, in consequence of the poisonous nature of oxalic acid. It is probable that Thompson obtained his information from this source. Pereira, however, states that it has never been used in medicine. I have been unable to discover any other record of its use, except that it has been employed by a Norwegian physician, in a formidable skin affection peculiar to that country, called Radesyge. The good effects of oxalic acid in phthisis are quickly developed. Two or three doses afford marked relief to some of the most distressing symptoms of the disease, but, as will be seen, the greatest care is required in administering it.

In my early experiments with this acid, I

commenced with too large a dose, which frequently gave rise to loss of appetite, sickness, diarrhœa, a burning pain extending from the fauces to the region of the stomach, headache, and a feeling of general discomfort. Consequently, I should have abandoned it at once, as, in fact, I did in several cases, where the disease was far advanced, had I not observed in one of them a considerable abatement in the cough and expectoration. I immediately diminished the dose to such an one as could be borne without inconvenience, and then gradually increased it. But it was not until several of my cases, which had made rapid improvement, had been thrown back, that I ascertained that the dose, instead of being increased, required much more frequently to be diminished, or, indeed, repeatedly modified, not only to meet each individual case, but also the changing condition which the various patients more or less exhibited. In some the cough and expectoration had increased, and in others the former had become hard and dry; in some instances the night sweats returned, the appetite disappeared, and diarrhœa not unfrequently ensued; while in all,

prostration of strength, with hurried pulse and respiration, were the invariable results of an excessive dose. In the early cases the physical signs indicated congestion of the lungs around the tuberculous deposit, and, in the more advanced, the cavities, which had become dry, again gave forth gurgling râles.

When the dose was small, and its benefits marked, it sometimes gave rise to diarrhœa; but this was speedily arrested by the addition of a little tincture of opium to the mixture. It, however, more generally regulated the bowels, even when prescribed during the existence of diarrhœa. If, however, the dose happened to be too large, not only the diarrhœa, but all the other symptoms of the disease, became aggravated. In most cases where it was judiciously employed, the difficulty of breathing and cough were quickly relieved, the expectoration diminished, the perspirations disappeared, and the appetite greatly improved. The physical signs, likewise, in all such cases underwent a speedy change for the better; the gurgling râle rapidly gave way to cavernous respiration, and in those where the disease was not so

far advanced the respiratory murmur became less harsh and bronchial, and the sound on percussion soon manifestly improved.

In all cases of phthisis, where softening of the tubercles has not commenced, it will be better to employ, in addition to these acids, local treatment over the seat of the congestion and tuberculous deposit, either by means of occasional blisters, croton oil, or any of the numerous irritating liniments or ointments usually employed for this purpose. If the general symptoms give way, and the physical signs improve, the use of the oxalic acid may be prolonged indefinitely. But if the amendment seems to be arrested, or the physical signs become aggravated, it will be necessary to withdraw the oxalic acid, and to have recourse to the fluoric.

When the disease has reached the cavernous stage, I would recommend that the treatment be commenced with the oxalic acid, as its good effects are developed more rapidly at this point than those which result from the employment of the fluoric. It is, however, most important not to persevere in the use of the former long enough to produce an attack

of congestion of the lungs, or it will occasion mischief enough to counterbalance the good which had previously accrued from its use. It may be easily conceived how annoying it is when a case which, but a few days before, was promising a favourable termination, now threatens, in consequence of want of prudence, to assume a very serious character. Where the disease is present in both lungs, the oxalic acid is more liable to give rise to congestion; and if the cough and expectoration have diminished from its use, and subsequently, after a short interval, a hard dry cough comes on, it is a very suspicious symptom of the approach of congestion; and although this is not always to be depended on, it will be better at once to discontinue its use, and resort to the fluoric. During the employment of either of these acids, cod-liver or other oils may be used.

The dose in which oxalic acid may be administered in phthisis should not exceed one-sixth of a grain, taken three times a day, at the commencement of its use. Considerable relief will frequently be experienced from the administration of this small quantity in the

course of twenty-four hours. Under its influence the harsh, distressing cough becomes easy and less frequent. The matter expectorated is brought up with less difficulty, and in smaller quantity; the patient breathes with greater freedom and comfort, whilst the night perspirations, in cases where, for some weeks past, they had been excessively profuse, diminish alike in quantity and regularity, or disappear altogether. To these improvements may be added a quicter circulation, a return of appetite, and the bowels, which had previously been irritable and irregular, return to a state of ease and comfort, together with a cessation of the restless nights, which are replaced by tranquil and restorative slumbers.

Should, however, this dose fail to realise any of these desirable effects, it must be gradually and carefully increased to one of half a grain, or a grain, three times a day. From the amount of good derived from these and even smaller quantities, the medical attendant, with a willing patient, might feel disposed to increase the dose of a medicine which proved to be so beneficial, under the probable expectation of making a greater impression upon

the disease, and thereby bringing about a more rapid cure. Here, then, lies the danger against which we must be most carefully on our guard. When this plan is followed without the strictest attention being given to its operation, all advantage which has accrued is likely speedily to disappear, and such an amount of congestion to be produced as will probably place the patient in a worse condition than he was before the treatment was commenced. Whilst, on the contrary, when a dose is prescribed sufficient to realise beneficial effects, it may be used to the same extent for an indefinite period.

Notwithstanding these precautionary remarks regarding the dose in which this acid is to be administered, I have met with several cases in which much larger doses have been taken for several consecutive weeks with evident advantage. Case VII. took more than four grains of the acid three times a day for six weeks, with so much benefit that she ceased to visit me during that period; and as I had met with repeated cases in which a much smaller dose, though continued for a shorter time, was attended with mischievous

results, on her re-appearance I at once reduced her dose. At the end of a week, when I saw her again, she begged to have the former quantity, as it gave her much greater relief than she experienced from the latter.

I may further remark, that the taste of this acid is not by any means objectionable, so as to form a subject of complaint among patients. Indeed, in most cases its effects are so satisfactory, that I have heard patients express themselves warmly in admiration of the benefit they had derived from its use; and they not unfrequently observe, that it has an immediate effect in checking their cough.

This agent will also be found very beneficial in bronchitis.

I may mention, however, that before I proceeded to the employment of these acids in the following cases, the great majority of them, and more especially those in which the disease was far advanced, and where large cavities already existed, had experienced the advantage of the most approved modes of modern treatment. Indeed, it was not until the patient had lost so much ground as to threaten speedy dissolution, that I finally abandoned

them, and resorted to these new means of combating the disease, so that the agents which I have now introduced were severely tested. But although many of the cases promise to turn out successfully, still the remedies will require a more lengthened trial from the Profession in general, than I have yet been able to give them, in order to arrive at a just estimate of their value. At the same time, I would not have it imagined that the effect of these acids will be found equally satisfactory in every instance in which they may be tried, as in the cases hereafter detailed. Of this, however, there can be no doubt, that they will be found most valuable additions to the remedies hitherto employed in the treatment of this formidable disease.

Case II.

Case of eight years' standing benefitted by Naphtha, and farther improved by Fluoric Acid.

Elizabeth K——, ætat. thirteen, lost her mother from consumption shortly after her birth. She was placed under my care when she was five years old, in consequence of a cough

which she had laboured under for several months. Upon examining her chest, the upper part of the left side was deficient in expansion, a dull sound was elicited by percussion, the respiratory murmur was bronchial, and attended with moist rattles. She improved rapidly under the use of naphtha, and this she recurred to with great advantage for several years; the cough never wholly disappeared, and when she ascended a staircase, or over exerted herself in play with other children, her breathing became difficult. During the seven or eight years the child continued under this treatment, the naphtha was occasionally exchanged for cod-liver oil, olive oil, and the bisulphuret of carbon, all of which relieved her for a time. However, in the autumn of last year the child became considerably worse, although I had not seen her since the spring, as the father was frequently in the habit of administering a little naphtha or cod-liver oil to her without consulting me.

Dec. 19.—The cough was most distressing, the expectoration was thickly streaked with blood, and in considerable quantity; breathing difficult; total loss of appetite; great debility

and wasting; pulse 132, and respiration 26 per minute. The chest was flattened, and exhibited depressions over the superior part of the left side, where a dull sound resulted from percussion, and a large gurgling cavity, and pectoriloquy were heard on the application of the stethoscope. The other side of the chest sounded and expanded well, but scattered sibilant, and moist rattles were heard, when a long breath was taken; half a grain of oxalic acid was prescribed three times a-day, which rapidly improved her appetite and breathing, and diminished the cough and expectoration.

In the course of ten days these good effects began to subside, when the acid was augmented to one grain three times a day; as the child lost ground under this dose, it was diminished to 1-6th of a grain, and as no improvement followed its use it was withdrawn altogether, and olive oil, naphtha, and the chlorate of potash were prescribed without any particular benefit following their exhibition.

Feb. 17.—I prescribed the 1-48th part of a drop of fluoric acid three times a-day: this was increased in the course of a week to 1-24th, under which medicine she made great improve-

ment. On April 15th she hardly coughed in the course of twenty-four hours, the expectoration had ceased, the breathing was freer, the appetite excellent; the sound on percussion was less dull, the cavity emitted a dry sound, with an occasional very acute sibilant râle; pectoriloquy, which was in December a very striking feature, could not now be detected; the pulse was this day 104, and the respiration 20 in the minute. April 28th, the cavity is diminishing in size, and she is gaining flesh and strength daily.

Case III.

Case of far-advanced Phthisis—Large Cavity undergoing marked improvement from Fluoric Acid.

Mrs. M——, ætat. thirty-four, born of a consumptive family, of which several members died from phthisis, both on her father and mother's side. She was first troubled with a cough about six years ago, which has never entirely left her, although it has been much better at times, and is always attended with more or less expectoration. During this period she has had several attacks of hæmoptysis, and the expectoration has been repeatedly streaked with blood;

breathing was difficult, particularly after unusual exertion; perspirations had been excessive, and she was greatly emaciated. The catamenia had been suspended several times for two or three months together. She first consulted me in May last: the cough was then very distressing, and the expectoration considerable; she was hoarse, and suffered pain below the left clavicle. On examining the chest, the left side was flattened, and expanded very little on deep inspiration; a dull sound was the result of percussion over this space for two or three inches below the clavicle, where also the stethoscope elicited a large gurgling cavity, as well as pectoriloquy.

A harsh respiratory murmur was observed in the larynx; pulse 116, respiration 26 in the minute. She had for the last two years taken cod-liver oil, at first with benefit, but for some months she had been getting worse. For several months, during which time her treatment consisted entirely of naphtha and bisulphuret of carbon, she underwent a good deal of improvement, but it did not continue for any great length of time, being every now and then interrupted by an unfa-

vourable change; she, however, permanently recovered her voice.

Dec. 16.—She took 1-3rd of a grain of oxalic acid three times a day up to the 3rd of February. She made a steady improvement, the cough and expectoration being less than they had been for the last year; the appetite was excellent, the cavity perfectly dry, pulse 94, respirations 24 in the minute. March 10. Not so well; cough and expectoration had increased, with head-ache and loss of appetite. From this time up to April 28th, she took 1-12th of a drop of fluoric acid three times a day with great advantage. The volume of sound was diminished in the cavity; it had a broken or divided character, and emitted a shrill sibilant râle; pectoriloquy could not be detected; whilst her general health was remarkably improved.

Case IV.

A large Cavity—Great Improvement under the use of Fluoric Acid.

Mrs. G——, ætat. twenty-six, born of consumptive parents; her husband had been mar-

ried to her sister, who died of consumption. She always enjoyed good health until her marriage, which took place four years ago. At that time a dry cough commenced, which was followed by spitting of blood, and eventually great expectoration and emaciation. When she applied to me for advice on March 10th, she was remarkably thin, the cough was very severe, the expectoration considerable, and the difficulty of breathing very distressing; the catamenia had been suspended, but had lately reappeared. Upon examining the chest, a large gurgling cavity was discovered in the upper part of the left lung; the appetite was impaired, the pulse 124, respirations 28 in the minute; 1-24th part of a drop of fluoric acid was ordered three times a day; this she continued until April 14th, when the cough had much diminished, and the expectoration entirely disappeared; the cavity was perfectly dry, and had a divided sound, as if the sides were approximating; a remarkably shrill sibilant râle could be heard on a deep inspiration, more acute than that of bronchitis. April 28. The improvement in every way continues, and her strength is considerably increased.

Case V.

Phthisis far advanced—Large Cavity in Right Lung—Extensive Disease in Left—Rapid Improvement under Oxalic Acid.

John H——, ætat. thirty-nine, an upholsterer. He states that he was the grand-nephew of the celebrated John Hunter, was born of healthy parents, had laboured under a severe cough and copious expectoration for the last three years, which appeared to have arisen from cold. About fifteen months ago he had an attack of hæmoptysis; the expectoration has since been repeatedly streaked with blood, and he has become very much emaciated. He first consulted me last autumn, having previously taken cod-liver oil for eighteen months; he complained of severe cough, copious expectoration, and great debility; a large gurgling cavity was detected in the right lung; at the upper part of the left the respiratory murmur was tubular, and accompanied by moist rattles. From this period until March 6th, he took, at different times, naphtha, bisulphuret of carbon, and olive oil; I now prescribed 1-24th part of a drop of fluoric acid three times a-day; the pulse at that time was 110,

respiration 26 in the minute, weight 8st. 11lb.; under the influence of this agent he made a rapid improvement until April 1st, when the cough and expectoration, which had previously diminished considerably, slightly increased; in consequence, I ordered him 1-3rd of a grain of oxalic acid three times a-day. Up to the 15th this treatment was pursued with great advantage, when the cough and expectoration increased, and fluoric acid was again had recourse to; at the end of a week he begged to have the oxalic acid repeated, as he improved so much under its use. The pulse was 100, respiration 24 per minute, weight 9st. 4lb. On April 28th the progress was equally satisfactory.

Case VI.

Large Cavity in Right Lung—Severe Hæmoptysis, with great Improvement under the use of Fluoric Acid.

Mrs. C——, ætat. fifty. This lady was born in Ireland; her family was remarkably long-lived and healthy; she lost her first husband from consumption; but she enjoyed good health herself until the present attack, which arose from her

bed-room window being left open in the month of August, 1852, thereby giving rise to cough and hoarseness, and in the course of six weeks to expectoration, night sweats, and emaciation. She first consulted me about twelve months ago; the treatment pursued since that period has comprised naphtha, bisulphuret of carbon, and cod-liver oil. In the summer of 1853, she had a very severe attack of hæmoptysis; a similar one had occurred previously to my being consulted.

Dec. 12.—I made a careful examination of the chest, and found, as I had done before, a large gurgling cavity at the superior part of the right lung, with well-marked pectoriloquy; pulse 112, respiration 24 per minute. A grain of oxalic acid was prescribed three times a day; in the course of a fortnight she was in every way improved, and the cavity was dry. The acid was now augmented to a grain and a half for a dose. On Jan. 5th, as she appeared to be at a stand-still, the dose of the acid, which had been increased to two grains, was now administered in three-grain doses. Jan. 12. Cough and expectoration had considerably increased, with much difficulty of breathing,

and great acidity in the mouth; hydrocyanic acid and bicarbonate of potash were prescribed until March 4th, when the 24th part of a drop of fluoric acid was ordered three times a day. On April 6th great improvement had taken place; the signs of the cavity had become much less evident; the sides appeared to be approaching each other; and pectoriloquy could no longer be detected.

Case VII.

Cavities in both Lungs—Great Improvement under the use of Oxalic Acid.

Mrs. G——, ætat. thirty-three, lost her mother and a brother from consumption. She had been ailing for some considerable period, but did not suffer much from cough until the last two years; it was generally accompanied by expectoration, hoarseness, and difficulty of breathing, deficient appetite, and irregular bowels. The catamenia, although scanty, has been regular. November 2nd I made an examination of the chest. Depression existed on both sides, and expansion was also deficient on both sides; dulness on percussion was more extensive over

the upper part of the right side than on the left; a considerable gurgling râle and pectoriloquy were observed below the right clavicle, and over a smaller space below the left, with a harsh metallic respiratory murmur in the region of the larynx. Four grains and a half of oxalic acid and five minims of naphtha were ordered three times a day.

I did not see her again until December 24th. As the medicine did her so much good, she thought it was unnecessary to call every week. The appetite was excellent, cough and expectoration much diminished, and she breathed with comfort; percussion yielded a clear sound over the left side, but still continued very dull over the right; the gurgling râle, which was heard over the right side, was now replaced by cavernous respiration, and that at the left could not be detected, its place being occupied by bronchial respiration, with an occasional very acute sibilant râle.

I at once reduced the oxalic acid to grain doses, but at the end of a week she returned not quite so well, and begged to have the prescription for the previous medicine, under the influence of which she continued to im-

prove until the beginning of March, when, in consequence of a little increase of cough, the twenty-fourth part of a drop of fluoric acid was prescribed three times a day. She again improved until April, when, not being quite so well, she again had recourse to the oxalic acid mixture. April 26th. She continues daily to improve, except in her voice, which remains as hoarse as it was in the autumn.

Case VIII.

Tuberculous Deposits in both Lungs arrested by Oxalic and Fluoric Acids.

Henry C——, ætat. twenty-nine, a waiter at a neighbouring hotel, lost both his parents before they reached the age of forty, but does not know the cause of their death. He had always enjoyed good health until the day of the Duke of Wellington's funeral, when he caught a severe cold, which ended in a cough, that has troubled him ever since. Expectoration, difficulty of breathing, nocturnal perspirations, and wasting, slowly followed, accompanied by loss of appetite. He consulted me November 30th; and, in addition to the

above symptoms, expansion was deficient over the left side of the chest, where percussion yielded a dull sound, and the respiratory murmur was tubular, accompanied by moist rattles. Over the upper part of the right side the respiratory murmur was harsh and bronchial. I ordered him a grain and a half of oxalic acid three times a day. On December 14th the cough and expectoration had considerably diminished; the appetite was improved, and he felt stronger and generally better. On the 28th, although his pulmonary symptoms had undergone farther improvement, he had become much weaker in consequence of diarrhœa, loss of appetite, and great uneasiness at the pit of the stomach after taking food. The oxalic acid was withdrawn, and five grains of the nitrate of bismuth were prescribed three times a day. This was continued until January 20th, by which time the gastric disturbance had entirely subsided, but, on the other hand, the cough and expectoration had considerably increased. Three-quarters of a grain of oxalic acid was now administered three times a day, instead of the bismuth. In the course of a week the

stomach disorder had returned with as much severity as ever, in consequence of which I again had recourse to the bismuth. He continued very weak, and making but little progress towards recovery for several weeks, complaining occasionally of pain in the left side, and attributing his relapse to over-working himself when he felt better. On March 7th I prescribed the twenty-fourth part of a drop of fluoric acid three times a day, and this plan was pursued uninterruptedly until the 2nd of May. He rapidly improved under its use in appetite and strength. He now hardly coughs or expectorates; the expansion of the left side of the chest nearly equals that of the right; the sound on percussion is not perceptibly different; the respiratory murmur is bronchial and harsh over the upper part of the left lung, and over the right it has regained its healthy character.

Case IX.

Mr. G——, ætat. twenty-eight, a public singer, born in Dublin, of healthy parents,

always enjoyed good health until the last six months, when he was attacked with hoarseness and slight cough, for which he consulted me before Christmas. I examined his chest, but could not detect any disease of the lungs; the affection of the windpipe speedily gave way, and I saw no more of him until March 9th. He was then much thinner, and informed me that he had been very ill for the last fortnight, with a severe dry cough, and much difficulty of breathing, attended with drenching night perspirations, with a total loss of appetite, and in consequence he had been obliged to relinquish his professional duties.

Upon examining his chest, expansion was deficient over the left side superiorly, and there was also a considerable amount of dulness on percussion, extending at least three inches below the clavicle. The respiratory murmur was bronchial, accompanied with moist rattles. A twenty-fourth part of a drop of fluoric acid was administered three times a day. This treatment was uninterruptedly continued until April 20, with very striking advantage. The cough quickly yielded, the difficulty of breathing disap-

peared, and the appetite became excellent; flesh and strength were gained. The chest now expands equally; dulness on percussion was no longer perceptible, and the respiratory murmur had recovered its healthy character, except at a small spot about two inches below the left clavicle, where it was harsh. This day his cough is a little increased, and I ordered him, in consequence, a third of a grain of oxalic acid three times a day.

April 27. Says he has not been so well for the last six months; the cough has entirely disappeared, and for the last week he has resumed his professional duties.

Case X.

Deposit of Tubercle in Left Lung—Beneficial Results from Fluoric Acid.

Samuel G——, ætat. eighteen, born of consumptive parents, both having died of consumption, and he has a brother now lying dead of the disease. He consulted me on March 13th. He was thin and badly developed, and does not look older than many boys of fourteen. Cough had been very troublesome

for the last twelve months, attended with slight expectoration, and he perspired profusely in bed towards morning. His breathing was difficult, and he had lost considerably in flesh. Expansion was deficient over the upper part of the thorax, and percussion elicited a dull sound below the left clavicle, where the respiratory murmur was bronchial. His appetite was deficient. A twenty-fourth part of a drop of fluoric acid was ordered three times a day. This treatment was pursued until April 10th with great advantage. The cough and expectoration had entirely disappeared, as well as the night perspirations; his breathing was free and appetite excellent.

Case XI.

John E——, ætat. thirty-seven, a carpenter, born of healthy parents, and had been a great drunkard. About six months since he first began to cough. He had had an attack of hæmoptysis; night perspirations followed, with considerable difficulty of breathing, and he had become emaciated. The chest was deficient in expansion on the right side; a

little dulness on percussion was perceptible at the sternal end of the clavicle of the same side, where a small gurgling râle was perceived, as well as pectoriloquy.

March 22. I prescribed a twelfth part of a drop of fluoric acid three times a day. He rapidly improved, and on April 25th I could not find the cavity in the right lung; his cough and expectoration had disappeared, as well as the night perspirations; he had regained his appetite, and, although very thin, was much stronger.

Case XII.

Deposit of Tubercle in Left Lung—Great Improvement from Oxalic and Fluoric Acids.

Mr. A——, ætat. twenty-one, a barrister's clerk, had always been temperate, and his family are stated to have been healthy. Has had a cough from infancy, but during the last nine months it had considerably increased, and was accompanied by great expectoration. The night sweats were excessive, and lately he had lost both flesh and strength.

He first consulted me in October last, and,

as he had taken cod-liver oil for several months, I prescribed olive oil; but from this he derived no benefit. December 16th. I examined his chest; expansion was deficient over the upper left side, where there was considerable dulness, with tubular respiration and moist rattles. A grain of oxalic acid was prescribed three times a day. This plan was pursued, with slight variation in the doses of the acid, until March 6th, with much advantage to all the symptoms. The dulness below the left clavicle had disappeared, as well as the moist rattle; but he considered his cough had become a little more troublesome during the past week.

I ordered him a twelfth part of a drop of fluoric acid three times a day, which was persevered with until April 23rd, and he now considers himself better than he has been for the past two years.

Case XIII.

Small Cavity in Left Lung—Arrest of the Disease by Oxalic Acid.

Mrs. A——, ætat. forty, consulted me in October last, for the first time: born of con-

sumptive parents; and had lost all her brothers and sisters from phthisis. She had laboured under cough and expectoration for several years; the latter had been frequently streaked with blood; night sweats had been profuse; and, during the last twelvemonths, this lady had lost fourteen pounds in weight; appetite was deficient; and the bowels alternately relaxed and confined; breathing was difficult; and she complained of inability to lie on the left side, without severe coughing. Feels pain below the left clavicle; with heat, itching, and occasional pain in the windpipe.

On examining the chest, expansion was deficient at the upper part of the left side, where there was considerable dulness on percussion, with a gurgling rattle, occupying not more than a square inch of space. I prescribed a grain of oxalic acid three times a day. This was continued, with a little variation in the dose, until January 21, 1854, when, in consequence of the patient feeling perfectly well, the medicine was discontinued. On examining the chest, there was still a slight deficiency of expansion below the left clavicle, and percussion yielded a clearer sound. The gurgling râle had entirely

disappeared, and its place was occupied by a coarse respiratory murmur.

The season of the year in which I commenced this treatment was the most trying that could have been selected for the experiment. Many of the patients were in that rank of life in which they were compelled to labour to keep their families from starving, and obliged to live on food not very proper for invalids; while their clothing was but too often insufficient to protect them from the cold of the late severe winter. Under all these disadvantages, however, a great amount of success has been realised.

In most of the cases which are here narrated, the larynx and trachea were sponged with a weak solution of the nitrate of silver. In doing this, I had another object in view besides that of relieving any local affection which might happen to exist in those organs. I am convinced that in other diseases of the lungs, as well as in phthisis, patches of inflammation and congestion, which thicken the mucous membrane of the laryngeal passage, in this way obstruct the entry of the normal

quantity of air into the lungs, and thus become another obstacle to the healthy decarbonisation of the blood. Hence the object I wished to attain was this, that, as far as the larynx and trachea were concerned in the act of respiration, they should present no impediment to the free passage of air either into or out of the lungs. For no one who has been in the habit of passing the laryngeal probang into the trachea can have failed to observe the freedom of breathing which so constantly follows the withdrawal of the sponge.

It may perhaps not be out of place to notice here that, with this view, I have employed this plan of treatment in every case of scarlet and typhus fever which has come under my care during the last few years, and with the most satisfactory results. In these diseases congestion frequently takes place in the mucous membrane of the larynx and trachea, and secretions collect in the ventricles of the larynx, and its neighbourhood, which the patient does not perceive in consequence of the blunted sensibility of the nervous system, but which constitute a serious obstacle to the healthy performance of the act of respiration, and the

decarbonisation of the blood. These impediments are no sooner removed, than a freer expansion of the walls of the chest is perceived, and by a persistence in the treatment, the disease gradually assumes a milder character.

Mr. Aubin, the intelligent manager of the District Schools at Norwood, informed me that, owing to what he had heard me state on this subject, he had succeeded in inducing the medical officer of that establishment to employ this treatment among the children labouring under scarlet fever. He also added that this disease, which was formerly greatly dreaded in the establishment over which he presided, in consequence of its being so fatal a scourge to the children, was now no longer regarded with anxiety. Indeed so mild a form did the affection assume under this mode of treatment, that the children rarely required any medicine beyond a dose of castor oil.

TREATMENT

OF

HOOPING COUGH.

CHAPTER I.

The object of the following pages is rather to elucidate the special *treatment* of hooping-cough, from original researches, involving an experimental inquiry into the specific action of a variety of hitherto untried drugs, than to put forth a systematic treatise on that disease, compiled from other authors. It seems, therefore, unnecessary to give a detailed description of the usual progress and symptoms of the complaint, which may be found in any elementary work on the practice of medicine.

Hooping-cough is generally admitted to be a contagious affection. Its essence, like that of small-pox and scarlet fever, is supposed to be some material poison; but its exact nature is not known. It is probably gaseous; and

those writers who consider hooping-cough to be a constitutional disorder, believe that it is conveyed into the blood through the medium of the lungs, and finally developes itself in the laryngeal region, as scarlet fever does in the tonsils, and small-pox in the skin. I, however, am strongly disposed to question its constitutional nature, for several reasons.

In the course of numerous opportunities which I have had of observing the disease, I have seen cases repeatedly develope themselves without any appreciable evidence of constitutional disturbance; as, for instance, when the premonitory cough has been unaccompanied by the slightest fever. And I have also notes of fifty-eight cases in which there was no preceding cough of any kind (see Table). In these, the first indication of change in the patient's health was a distinct hoop, and then the disease ran its usual course; thus differing essentially from measles, scarlet fever, and diseases of the same class, which are invariably ushered in by well-marked symptoms of fever. During my experience of this complaint, I have been repeatedly urged by parents, when attending their chil-

dren for hooping-cough, to treat those also who were labouring under, at most, only the premonitory cough. This I formerly refused to do, on the principle that, as neither they nor I could be certain that it was hooping-cough until the hoop developed itself, I should not be satisfied that the children had actually laboured under the disorder, and the parents would feel more or less apprehension when their children approached others who were suffering from this affection.

However, in some cases, where the cough was paroxysmal and suffocative, and had nearly reached a hoop, especially in families where one or more children were labouring under unmistakeable hooping-cough at the same time, I have been induced to treat the cases, partly in deference to the desire of the parents themselves, as well as from a wish on my own part, to ascertain how far the local method of treatment would arrest or influence the complete development of the disease. I have repeatedly found it disappear without the occurrence of a single hoop, whilst in other cases but a few slight ones have been heard before the cure was completed. If this

be not considered sufficient evidence to shake the constitutional theory, I may add that I have repeatedly seen cases of hooping-cough, where as many as from twenty to thirty paroxysms had occurred within four-and-twenty hours, become suddenly and completely arrested after a single application of the sponge to the larynx, moistened with a solution of aconite, or some of the other active alkaloids, so that the child never hooped again. This seems to me something like demonstration of the cure of the disease by local means, inasmuch as it is scarcely possible to conceive that, in the cases to which I have alluded, sufficient time was afforded the agent to pervade the system to such an extent as would enable it to effect so extraordinary a change. Nor must I omit to mention the significant fact, that I have cured upwards of two thousand cases by local treatment alone.

It is true that the question might be very fairly and properly put, How do you prove that this local treatment does not cure by acting generally?—that the fluid in the sponge does not make its way into the blood, thus prevade the whole system, and in this

way destroy the disease? My reply would be that, amongst the various agents that cure hooping-cough, when applied within the larynx, there are some that are useless when conveyed into the stomach; in other words, they cure the disease when applied to its seat, but not when introduced through the system. The following are examples of such agents:—Senna, common salt, aconite, veratria, iodic and fluoric acids, which are useful as local remedies only. And although the chloride of strontian, and oxalic acid, cure the disease more rapidly, and with greater certainty, when administered through the system than when applied locally within the larynx, yet, from the facts before stated, that several of the alkaloids, as well as the fluoric and iodic acids, remove the disease when applied to the larynx, but fail to do so when taken into the stomach in the usual manner, I am led to believe that the two former agents do, nevertheless, act locally—that they mingle with the blood, and reach every part of the body, the seat of the disease included, and thus, in some subtle and mysterious way, effect its removal. Hence I regard the

disease as essentially a local affection, having its seat in the inferior, and perhaps in the superior, laryngeal nervcs, branches of the par vagum.

Many different opinions have been advanced relative to the seat of this disease. By some it has been fixed in the par vagum, on account of that nerve having been occasionally found in a congested condition after death from hooping-cough. But we know that Nature has established various modes for removing obstructions from the different canals of the body—as when they exist in the nose, by sneezing—when in the pulmonary tubes, by coughing—when in the stomach, by vomiting. And the sensation of these obstructions is conveyed through certain nerves; consequently, if the irritation were applied to the par vagum, sickness, instead of hooping, would most probably follow; since in those cases, where it has been asserted that the latter result has been produced, it was probably nothing more than a shrill sound, resembling the peculiar hoop which gives its name to this disease. But the sickness does not occur until the disease assumes a considerable degree of

violence, and the stomach has been disturbed by the convulsive efforts of the cough. Others, again, have located the disease in the brain, from the convulsions which sometimes complicate the affection, induced by the violence and frequency of the cough, which impedes the circulation through the lungs, and thus prevents a free return of the blood through the veins of the head; congestion of the brain follows, and this terminates in convulsions and hydrocephalus. A third opinion is, that the lungs are the seat of the disease, from the frequent complications of hooping-cough with bronchitis and pneumonia; whilst a few have even maintained that the stomach is the original source of this complaint.

In the spring of the year 1838 my attention was first directed to the local treatment of hooping-cough, by the result of the application of a weak solution of the bicyanuret of mercury to the fauces. In the course of the year 1840, I employed this method of treatment in several cases at the Blenheim-street Dispensary. At that time I sponged the pharynx and the larynx with a solution of this agent, of the strength of ten grains to

the ounce of distilled water; but, as no material benefit accrued from its use, I abandoned the farther employment of this agent until the latter part of the year 1846, when, believing that the seat of the disease was in the laryngeal nerves, I determined to commence a series of experiments in the local treatment of hooping-cough. As there was no remedial agent in use, of sufficient value to be generally relied upon in the treatment of this disorder, it seemed to me that there was a fair field for an inquiry, which might well reward a careful and complete investigation.

Although I felt at the outset that it would be a work of considerable labour, still I had no idea of the task I had imposed upon myself, or I certainly should have paused before entering upon so arduous an undertaking; indeed, nothing but the partial success which now and then rewarded my exertions encouraged me to persevere. I have thus continued my experimental inquiry into the specific treatment of hooping-cough for a period of seven years, and it is yet far from being completed. During this period I have taken notes of 3,350 cases which I have attended, and tested

the value of 551 different agents in the local treatment of this disease.

Besides my own labour, mental and physical, there were troubles and annoyances, and also expenses, connected with the inquiry, which probably would not suggest themselves to those who have not been engaged in an occupation of this nature. Many of the remedies employed were expensive, and some difficult to obtain. I may instance nicotine as one, which I was unable to procure for at least twelve months. It was not to be obtained in London; neither Messrs. Bell, Allen, Morson, nor several other eminent houses had it; I was equally unsuccessful in obtaining this agent in Paris, and was at length obliged to get some manufactured by Morson. At the commencement of my inquiries, I found it difficult to procure cases in the face of my greatest exertions to obtain them; but for several years they have been more numerous than I desired. Perhaps I should not have entered into these details, had the result of the inquiry been less successful, nor will the relation of them have been altogether useless, if my unceasing efforts during a series of years

should stimulate others to carry out investigations of a similarly protracted nature.

I well remember how my hopes were raised, and my determination strengthened, after the first cure had been rapidly accomplished by this mode of treatment. Often have I anticipated a termination of my labours, when several consecutive cases had been cured by the same agent; but, as frequently a sudden check would be given to this expectation by a series of failures, occasioned by constitutional peculiarities in the patients, or by atmospheric or other causes very difficult to determine, and in this way, from year to year, I was led hopefully on. In the treatment of the disease I laboured under many disadvantages, which were not shared by other practitioners. My patients were exposed to the inclemency of the weather, as they were all brought to my house — they were drawn from the lowest ranks of society — whilst many were badly clad and fed, and lived in unwholesome atmospheres. My cases also were worse than the average, as many of them were not brought to me until ordinary treatment had failed, and not a few were labouring under severe and

dangerous complications. Indeed, in some instances, children have been carried here in a dying state; but it is hardly necessary to add, that I refused to treat such cases by a novel method, for obvious reasons. The plan I usually adopted in testing the value of these agents in hooping-cough, was to sponge the larynx in five or six cases at the same time, with a solution of the drug as strong as could be conveniently borne, every morning or every other morning for a week, even if no immediate benefit accrued from the application. But if improvement, however slight, showed itself in the course of the week, I lost no time in following up that particular treatment, until the real value of the agent could be ascertained.

The following is the list of agents which I have tested, in the local treatment of hooping-cough, preceded by an analysis of the number of cases treated.

I much regret that the difficulty of digesting and reducing into order so large a number of cases has hindered me from eliciting many interesting details which might otherwise have been extracted from these complex ma-

terials. At the same time, I believe that I have not omitted to draw attention to those points to which the greatest interest will probably be attached.

Males	1530
Females	1820
Total number of cases of hooping-cough treated	3350
From birth to 1 month	16
From 1 month to 6	310
From 6 months to 12	532
From 1 year to 2	691
From 2 years to 3	563
From 3 years to 4	434
From 4 years to 10	706
From 10 years to 20	37
From 20 years to 30	28
From 30 years to 40	17
From 40 years to 50	8
From 50 years to 60	5
From 60 years to 70	3
Cases that suffered a second attack	45
Cases of 6 months' standing and upwards when they presented themselves for treatment	14
Cases unattended by premonitory cough	58
Average duration of premonitory cough ascertained in 1431 cases	$12\frac{1}{2}$ days.

From the foregoing table, it appears that hooping-cough is a disease more common among females than males; and though it would seem not to be a disorder of frequent occurrence in the first month of life, yet it is clearly more prevalent during the first year than any subsequent one. About the fifth year there is an evident diminution in the number of attacks, and they continue to decrease until the age of forty, after which period the disease becomes extremely rare. The number of second attacks in this table falls short, I believe, of the actual amount, as under this head I have omitted all those cases in which there was any doubt about the disease having existed before. Amongst the cases of six months' standing and upwards was one remarkable instance, in which the hooping had continued uninterruptedly for more than eight years. The number of cases unattended with premonitory cough will probably surprise many; but they were not admitted into the table until they had been closely inquired into.

Agent.	Strength employed.	Duration of trial.	Result.
	ACIDS.		
1. Acid: Nitric	1 part to from 6 to 10 of water	21 days	Useless.
2. —— Hydrochloric	1 part to 10 of water	21 days	Useless.
3. —— Sulphuric	1 part to from 5 to 10 of water	28 days	Useless.
4. —— Benzoic	Saturated solution in water	44 days	Useless.
5. —— Boracic	Ditto ditto	10 days	Useless.
6. —— Gallic	Ditto ditto	14 days	Useless.
7. —— Phosphoric	Ditto ditto	30 days	Useful.
8. —— Tartaric	Ditto ditto	30 days	Useful.
9. —— Oxalic	Ditto ditto	36 days	Useful.
10. —— Citric	Ditto ditto	20 days	Useful.
11. —— (Glacial) Acetic	1 part to 4 of water	40 days	Very useful.
12. —— Hydrocyanic	1 part to 3 of water	20 days	Useless.
13. —— Fluoric	1 part to 7 of water	6 months	Very useful.
14. —— Hippuric	1 part to 10 of water	10 days	Useless.
15. —— Uric	1 part to 8 of water	10 days	Useless.
16. —— Parabanic	1 part to 10 of water	7 days	Useless.
17. —— Uramilic	1 part to 10 of water	17 days	Useless.
18. —— Malic	As prepared by the chemist	10 days	Useless.
19. —— Hydro-fluo-silicic	1 part to 10 of water	12 days	Useless.
20. —— Tungstic	1 part to from 10 to 20 of water	35 days	Useful.
21. —— Pyro-gallic	1 part to 10 of water	16 days	Useless.
22. —— Succinic	1 part to 10 of water	8 days	Useless.
23. —— Iodic	1 part to 60 of water	4 months	Very useful.
24. —— Chromic	1 part to 20 of water	10 days	Useless.
25. —— Tannic	1 part to 10 of water	8 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	ACIDS.		
26. Acid: Hydro-sulphuric	1 part to 6 of water	17 days	Useless.
27. —— Valerianic	1 part to 10 of water...	16 days	Useless.
28. Succus Limonis	As found in the lemon	30 days	Useful.
	PREPARATIONS OF POTASH.		
29. Potas: Iodid	Saturated solution in water	24 days	Useless.
30. —— Liquor	1 part to from 6 to 10 of water ...	20 days	Useful.
31. —— Bichromat	Saturated solution in water	8 days	Useless.
32. —— Supertart	Ditto ditto	10 days	Useless.
33. —— Bromid	Ditto ditto	20 days	Useful.
34. —— Sulphat	Ditto ditto	8 days	Useless.
35. —— Sulph cum Sulphure	Ditto ditto	16 days	Useless.
36. —— Pruss. (red)	Ditto ditto	20 days	Useless.
37. —— Pruss. (yellow)	Ditto ditto	2 months	Useful.
38. —— Cyanid	Ditto ditto	7 days	Useless.
39. —— Fluorid	Ditto ditto	20 days	Useful.
40. —— Chlorid	Ditto ditto	20 days	Useful.
41. —— Chlorat	Ditto ditto	10 days	Useless.
42. —— Carb.	Ditto ditto	8 days	Useless.
43. —— Bicarb.	Ditto ditto	8 days	Useless.
44. —— Nitrat	Ditto ditto	7 days	Useless.
45. —— Arsenit	Ditto ditto	16 days	Useless.
46. —— Ant. Tart.	Ditto ditto	7 days	Useless.
47. —— cum Calce	1 part to 20 of water...	16 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	PREPARATIONS OF POTASH.		
48. Potas: Chromat	Saturated solution in water	10 days	Useless.
49. —— Sulpho Cyanid	1 part to 10 of water...	20 days	Useful.
50. —— Binoxalat	Saturated solution in water	10 days	Useless.
51. —— Hydrarg. cum Iodid	Ditto ditto	17 days	Useless.
52. —— Permauganat...	Ditto ditto	6 days	Useless.
53. —— Superoxalat	Ditto ditto	30 days	Useful.
54. —— Acetat	Ditto ditto	20 days	Useful.
55. —— Sulphuret	Ditto ditto	20 days	Useful.
56. —— Citrat	Ditto ditto	7 days	Useless.
57. —— Ferri Tart	Ditto ditto	16 days	Useful.
58. —— Silicat	Ditto ditto	20 days	Useful.
59. —— Hydrarg. Cyanid. cum Iodid ...	Ditto ditto	16 days	Useless.
60. —— Alum	Ditto ditto	30 days	Useful.
	PREPARATIONS OF COBALT.		
61. Cobalt Protoxid	Saturated solution in water	18 days	Useless.
62. ——— Chlorid	Ditto ditto	10 days	Useless.
63. ——— Acetat...	Ditto ditto	7 days	Useless.
64. ——— Nitrat	Ditto ditto	10 days	Useless.
	PREPARATIONS OF MANGANESE.		
65. Mangan: Protoxid	Saturated solution in water	12 days	Useless.
66. ——— Sulph.	Ditto ditto	14 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	PREPARATIONS OF PLATINUM.		
67. Platin: Chlorid	1 part to 30 of water...	40 days	Useful.
68. ——— Sulphuret	Saturated solution in water	40 to 50 days ...	Useful.
	PREPARATIONS OF CADMIUM.		
69. Cadmii Sulphuret	Saturated solution in water	6 days	Useless.
	PREPARATIONS OF PHOSPHORUS.		
70. Phosph: Oleum	Saturated solution in oil	40 days	Useful.
71. ——— Soda	Saturated solution in water	10 days	Useless.
72. ——— Strychnat	1 part to 20 of water...	10 days	Useless.
73. ——— Calc	Saturated solution in water	30 days	Useful.
74. ——— Ferri	Ditto ditto	8 days	Useless.
75. ——— Ammon.	Ditto ditto	10 days	Useless.
76. ——— Cupri...	Ditto ditto	14 days	Useless.
77. Tribasic Superphos. Sod.	Ditto ditto	10 days	Useless.
	PREPARATIONS OF GOLD.		
78. Auri Chlorid	1 part to 30 of water	50 days	Useful.
79. —— Chlorid Sod.	Saturated solution in water	50 days	Useful.
80. —— Sulphuret	Ditto ditto	40 days	Useful.
	PREPARATIONS OF TIN.		
81. Stanni Oxi. Sulphuret	Saturated solution in water	12 days	Useless.
82. —— Nitromuriat	As furnished by the chemist	14 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	PREPARATIONS OF TIN.		
83. Stanni Bisulphuret	Saturated solution in water	35 days	Useful.
84. —— Protoxid	Ditto ditto	10 days	Useless.
85. —— Protosulphuret	Ditto ditto	12 days	Useless.
86. —— Chlorid...	Ditto ditto	17 days	Useless.
	PREPARATIONS OF BARIUM.		
87. Barii Sulphuret	Saturated solution in water	10 days	Useless.
	PREPARATIONS OF BARYTA.		
88. Baryt: Alloxanat	Saturated solution in water	7 days	Useless.
89. ——— Sulphat	Ditto ditto	18 days	Useless.
90. ——— Oxid	Ditto ditto	10 days	Useless.
	PREPARATIONS OF CHROMIUM.		
91. Chromii Oxid....	Saturated solution in water	10 days	Useless.
	PREPARATIONS OF NICKEL.		
92. Nick: Oxid	Saturated solution in water	7 days	Useless.
93. —— Carbon	Ditto ditto	17 days	Useless.
	IODINE AND ITS PREPARATIONS.		
94. Iodine	The tincture of the Pharmacopœia...	18 days	Useless.
95. ——— Arsenic	1 part to 20 of water..	10 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	IODINE AND ITS PREPARATIONS.		
96. Iodine Sulph	Saturated solution in water	7 days	Useless.
97. ——— Calc.	Ditto ditto	16 days	Useless.
98. ——— Quinine	Ditto ditto	8 days	Useless.
99. ——— Plumb	Ditto ditto	30 days	Useful.
100. ——— Chlorid	1 part to 20 of water	7 days	Useless.
101. ——— Hydrarg	Saturated solution in water	10 days	Useless.
102. ——— Soda	Ditto ditto	10 days	Useless.
103. ——— Fer. cum Quin	Ditto ditto	16 days	Useless.
104. ——— Arsen. cum Hydrarg	Ditto ditto	7 days	Useless.
105. ——— Hydrarg. cum Pot.	Ditto ditto	7 days	Useless.
106. ——— Ferri	Ditto ditto	18 days	Useless.
	PREPARATIONS OF SILVER.		
107. Argent : Nitrat	Gr. v. to ʒ ij. to ℥j. of water	3 months	Useful in a slight degree.
108. ——— Chlorid	Saturated solution in water	10 days	Useless.
109. ——— Oxid	Ditto ditto	18 days	Useless.
110. ——— Sulph	Ditto ditto	10 days	Useless.
111. ——— Sulphuret	Ditto ditto	7 days	Useless.
	PREPARATIONS OF ARSENIC.		
112. Arsen : Sesquisulphuret	Saturated solution in water	12 days	Useless.
113. —— Soda	Ditto ditto	30 days	Useful.
114. —— Cupri	Ditto ditto	10 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	PREPARATIONS OF ARSENIC.		
115. Arsen: Sulphuret..	Saturated solution in water	7 days	Useless.
116. —— Acid	Ditto ditto	17 days	Useless.
117. —— Argent..	Ditto ditto	10 days	Useless.
118. —— Potas	Ditto ditto	10 days	Useless.
119. —— Iodid.	Ditto ditto	18 days	Useless.
	PREPARATIONS OF STRONTIA.		
120. Stront: Caustic	Saturated solution in water	20 days	Useless.
121. —— Nitrat.	Ditto ditto	18 days	Useless.
122. —— Sulph.	Ditto ditto	20 days	Useless.
123. —— Chlorid.	Ditto ditto	Several years ..	Very useful.
	PREPARATIONS OF AMMONIA.		
124. Ammon: Chlorid	Saturated solution in water	40 days	Useful.
125. —— Sp. Fort	1 part to 10 of water..	10 days	Useless.
126. —— Benzoat	Saturated solution in water	30 days	Useful.
127. —— Theonur....	Ditto ditto	7 days	Useless.
128. —— Ferri Chlorid	Ditto ditto	35 days	Useful.
129. —— Hydrochlorat	Ditto ditto	10 days	Useless.
130. —— Sp. Aromat	As prepared by the chemist	20 days	Useful.
131. —— Guaiac Tinct.	Ditto ditto	10 days	Useless.
132. —— Oxaluret	Saturated solution in water	30 days	Useful.
133. —— Ferri Tart.	Ditto ditto	30 days	Useful.

Agent.	Strength employed.	Duration of trial.	Result.
	PREPARATIONS OF AMMONIA.		
134. Ammon: Phosph.	Saturated solution in water	10 days	Useless.
135. ——— Cupri Sulph	Ditto ditto	8 days	Useless.
136. ——— Sesquicarb	Ditto ditto	40 days	Useful.
137. ——— Acetat	As prepared by the chemist	50 days	Useful.
138. ——— Urat	Saturated solution in water	10 days	Useless.
139. ——— cum Alum	Ditto ditto	30 days	Useful.
140. Nitrat. Urea	Ditto ditto	10 days	Useless.
141. Urea	Ditto ditto	18 days	Useless.
142. Allantoin	Ditto ditto	8 days	Useless.
	PREPARATIONS OF MERCURY.		
143. Hydrarg: Bicyanuret	Saturated solution in water	3 months	Useless.
144. ——— Ammon. Chlorid	Ditto ditto	10 days	Useless.
145. ——— Bichlorid	Ditto ditto	36 days	Useful.
146. ——— Protoxid	Ditto ditto	8 days	Useless.
147. ——— cum Creta	Ditto ditto	20 days	Useful.
148. ——— Nitric-Oxid	Ditto ditto	7 days	Useless.
149. ——— Chlorid	Ditto ditto	10 days	Useless.
150. ——— Acetat	Ditto ditto	8 days	Useless.
151. ——— Biniodid	Ditto ditto	40 days	Useful.
152. ——— Sulphuret	Ditto ditto	17 days	Useless.
153. ——— Peroxid	Ditto ditto	9 days	Useless.
154. ——— Iodid	Ditto ditto	10 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	PREPARATIONS OF BISMUTH.		
155. Bismuth Nit.	Saturated solution in water	30 days	Useful.
156. ——— Oxid	Ditto ditto	17 days	Useless.
157. ——— Sulphuret	Ditto ditto	18 days	Useless.
	PREPARATIONS OF SODA.		
158. Sod: Sulphat.	Saturated solution in water	30 days	Useful.
159. —— Iodid	Ditto ditto	10 days	Useless.
160. —— Fluat	Ditto ditto	40 days	Useful.
161. —— Tribasic Subphos	Ditto ditto	10 days	Useless.
162. —— Phosphat	Ditto ditto	9 days	Useless.
163. —— Sulphuret	Ditto ditto	30 days	Useful.
164. —— Nitrat	Ditto ditto	7 days	Useless.
165. —— Arsenit	Ditto ditto	20 days	Useful.
166. —— Carbonat	Ditto ditto	8 days	Useless.
167. —— Chlorat.	Ditto ditto	30 days	Useful.
168. —— Chlorid	As prepared by the chemist	20 days	Useful.
169. —— Succinat	Saturated solution in water	8 days	Useless.
170. —— Hyposulphit	Ditto ditto	30 days	Useless.
171. —— Biborat	Ditto ditto	10 days	Useless.
172. —— Acetat	Ditto ditto	19 days	Useless.
	PREPARATIONS OF MAGNESIA.		
173. Magnesia	Saturated solution in water	10 days	Useless.
174. ——— Nitrat	Ditto ditto	7 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	PREPARATIONS OF MAGNESIA.		
175. Magnes: Carbonat	Saturated solution in water	30 days	Useful.
176. ——— Citrat	Ditto ditto	8 days	Useless.
177. ——— Sulphat	Ditto ditto	17 days	Useless.
178. ——— Acetat	Ditto ditto	7 days	Useless.
	PREPARATIONS OF LIME.		
179. Calc: Chlorid	Saturated solution in water	10 days	Useless.
180. —— Phosphat	Ditto ditto	12 days	Useless.
181. —— Phosphuret	Ditto ditto	18 days	Useless.
182. —— Bromid	1 part to 20 of water	25 days	Useful.
183. —— Liquor	Saturated solution in water	10 days	Useless.
184. Cret: Ppt.	Ditto ditto	7 days	Useless.
	PREPARATIONS OF LEAD.		
185. Plumb: Chlorid	Saturated solution in water	40 days	Useful.
186. ——— Iodid	Ditto ditto	30 days	Useful.
187. ——— Protoxid	Ditto ditto	10 days	Useless.
188. ——— Acetat	Ditto ditto	10 days	Useless.
189. ——— Sulphuret	Ditto ditto	8 days	Useless.
190. ——— Chromat	Ditto ditto	19 days	Useless.
191. ——— Nitrat	Ditto ditto	10 days	Useless.
192. ——— Sulphat	Ditto ditto	7 days	Useless.
193. Litharge	Ditto ditto	7 days	Useless.
	PREPARATIONS OF SULPHUR.		
194. Sulph: Chlorid	Saturated solution in water	17 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	PREPARATIONS OF IRON.		
195. Ferr: Sulph	Saturated solution in water	16 days	Useless.
196. —— Oxisulphuret	Ditto ditto	18 days	Useless.
197. —— Carb.	Ditto ditto	40 days	Useful.
198. —— Citrat	Ditto ditto	2 months	Useful.
199. —— Sesquioxid	Ditto ditto	50 days	Useful.
200. —— Nitrat	Ditto ditto	15 days	Useless.
201. —— Sulphuret	Ditto ditto	10 days	Useless.
202. —— Sesquichlorid	Tincture of the Pharmacopœia	24 days	Useless.
203. —— Phosphat	Saturated solution in water	9 days	Useless.
204. —— Ammon. Chlorid	Ditto ditto	2 months	Useful.
205. —— Ammon. Tart	Ditto ditto	40 days	Useful.
206. —— Percitrat.	Ditto ditto	30 days	Useless.
207. —— Chromat	Ditto ditto	12 days	Useless.
208. —— Bromid	Ditto ditto	8 days	Useless.
209. —— Carb. Sacch.	Ditto ditto	50 days	Useful.
210. —— Ammon. Citrat	Ditto ditto	2 months	Useful.
211. —— Potas. Tart	Ditto ditto	30 days	Useful.
212. —— Acetat	Ditto ditto	20 days	Useless.
213. —— Tartrat	Ditto ditto	16 days	Useless.
214. —— Bisulph. cum Alum	Ditto ditto	20 days	Useless.
215. —— Sulph. cum Mangan	Ditto ditto	30 days	Useful.
216. —— Alum	Ditto ditto	10 days	Useless.
217. —— Reduced	Ditto ditto	35 days	Useful.
218. —— Reduced Saccharated	Ditto ditto	18 days	Useful.

Agent.	Strength employed.	Duration of trial.	Result.
	PREPARATIONS OF IRON.		
219. Ferr: Carb. cum Mangan	Saturated solution in water	14 days	Useless.
220. —— cum Hydrogen	Ditto ditto ..	16 days	Useless.
	PREPARATIONS OF COPPER.		
221. Cupr: Sulph	Saturated solution in water	20 days	Useless.
222. —— Acetat	Ditto ditto	16 days	Useless.
223. —— Oxid. Nig	Ditto ditto	16 days	Useless.
224. —— Phosphat	Ditto ditto	10 days	Useless.
225. —— Sulphuret	Ditto ditto	50 days	Useful.
226. —— Ammon. Sulph	Ditto ditto	8 days	Useless.
227. —— Chlorid	Ditto ditto	14 days	Useless.
228. —— Nitrat	Ditto ditto	16 days	Useless.
229. —— Oxid	Ditto ditto	10 days	Useless.
230. —— Carbonat	Ditto ditto	10 days	Useless.
	PREPARATIONS OF ZINC.		
231. Zinc: Acetat	Saturated solution in water	50 days	Useful.
232. —— Chlorid	Ditto ditto	18 days . ..	Useless.
233. —— Valerianat	Ditto ditto	10 days	Useless.
234. —— Oxid	Ditto ditto	40 days	Useful.
235. —— Sulphuret	Ditto ditto	18 days	Useless.
236. —— Carbonat	Ditto ditto	14 days	Useless.
237. —— Sulph	Ditto ditto	2 months	Useful.
238. —— Theonuret	Ditto ditto .. .	10 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	PREPARATIONS OF BROMINE.		
239. Bromine	1 part to 20 of water	7 days	Useless.
240. Bromat: Ferri	Saturated solution in water	8 days	Useless.
241. ——— Potas	Ditto ditto	20 days	Useful.
242. ——— Calc.	1 part to 20 of water	25 days	Useful.
243. ——— Hydroch	1 part to 20 of water	9 days	Useless.
	PREPARATIONS OF ANTIMONY.		
244. Antim: Potas. Tart.	Saturated solution in water	7 days	Useless.
245. ——— Oxid	Ditto ditto	16 days	Useless.
246. ——— Sulphuret	Ditto ditto	50 days	Useful.
247. ——— Pulv	Ditto ditto	18 days	Useless.
248. ——— Sulph. Rub	Ditto ditto	12 days	Useless.
	ANIMAL SUBSTANCES.		
249. Lyttæ Acet.	As prepared by the chemist	12 days	Useless.
250. Moschus	Saturated solution in spirit	10 days	Useless.
251. Coccus Cacti	Ditto ditto	20 days	Useless.
252. Castoreum	Ditto ditto	16 days	Useless.
253. Cetaceum	Ditto ditto	40 days	Useful.
254. Cera Alba	Ditto ditto	7 days	Useless.
255. Cera Flava	Ditto ditto	7 days	Useless.
	MINERAL WATERS.		
256. Freidrichshall	Procured from Best, of Henrietta-st.	3 months	Useful.
257. Spa	Ditto ditto	20 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	MINERAL WATERS.		
258. Marienbad	Procured from Best, of Henrietta-st.	20 days	Useless.
259. Seidschutz	Ditto ditto	10 days	Useless.
260. Seltzer	Ditto ditto	16 days	Useless.
261. Kreunzach	Ditto ditto	12 days	Useless.
262. Pullna	Ditto ditto	14 days	Useless.
263. Carlsbad	Ditto ditto	14 days	Useless.
264. Adelheidsquelle	Ditto ditto	14 days	Useless.
265. Pyrmont	Ditto ditto	16 days	Useless.
266. Facheingen	Ditto ditto	10 days	Useless.
267. Enghein	Ditto ditto	12 days	Useless.
268. Seidlitz	Ditto ditto	14 days	Useless.
269. Vichy	Ditto ditto	14 days	Useless.
270. Ems	Ditto ditto	16 days	Useless.
271. Kissengen	Ditto ditto	10 days	Useless.
272. Schwallbach	Ditto ditto	16 days	Useless.
273. Harrogate	Ditto ditto	12 days	Useless.
	OILS, ETC.		
274. Ol: Ergot	Used in its natural state	20 days	Useless.
275. —— Cajuput	Ditto ditto	10 days	Useless.
276. —— Croton.	Ditto ditto	14 days	Useless.
277. —— Aspid. Fil. Mar.	Ditto ditto	10 days	Useless.
278. —— Jecor. Asel.	Ditto ditto	20 days	Useless.
279. —— Juniper	Ditto ditto	16 days	Useless.
280. —— Ricini	Ditto ditto	12 days	Useless.

Agent.	Strength employed,	Duration of trial.	Result.
	OILS, ETC.		
281. Ol: Puleg	Used in its natural state	9 days	Useless.
282. —— Nap.	Ditto ditto	10 days	Useless.
283. —— Amygd	Ditto ditto	14 days	Useless.
284. —— Thym	Ditto ditto	16 days	Useless.
285. —— Sinap. Sem	Ditto ditto	7 days	Useless.
286. —— Caryoph	Ditto ditto	9 days	Useless.
287. —— Succin	Ditto ditto	10 days	Useless.
288. —— Palm	Ditto ditto	10 days	Useless.
289. —— Aneth.	Ditto ditto	14 days	Useless.
290. —— Menth. Pip	Ditto ditto	10 days	Useless.
291. —— Menth. Vir	Ditto ditto	12 days	Useless.
292. —— Piment	Ditto ditto	10 days	Useless.
293. —— Terebinth	Ditto ditto	12 days	Useless.
294. —— Oliv.	Ditto ditto	9 days	Useless.
295. —— Sabin.	Ditto ditto	14 days	Useless.
296. —— Æther	Ditto ditto	10 days	Useless.
297. —— Lin. Sem.	Ditto ditto	14 days	Useless.
298. —— Car.	Ditto ditto	8 days	Useless.
299. —— Mosch.	Ditto ditto	7 days	Useless.
300. Bal. Canad.	Ditto ditto	10 days	Useless.
301. —— Gileadens.	Ditto ditto	7 days	Useless.
302. Ess: Orig.	Ditto ditto	9 days	Useless.
303. —— Limon.	Ditto ditto	40 days	Useful.
304. —— Amygd. Amar.	Ditto ditto	40 days	Useful.
305. Rock Oil	Ditto ditto	50 days	Useful.

Agent.	Strength employed.	Duration of trial.	Result.
	OILS, ETC.		
306. Bal: Tulut.	Used in its natural state	10 days	Useless.
307. Glycerine	As prepared by the chemist	15 days	Useless.
308. Creasote	Ditto ditto	8 days	Useless.
309. Chloroform	Ditto ditto	10 days	Useless.
310. Bisulph. Carb	Ditto ditto	7 days	Useless.
311. Ter Chlorid. Carb	Ditto ditto	10 days	Useless.
312. Sap. Moll.	Ditto ditto	9 days	Useless.
	VEGETABLE PRODUCTIONS.		
313. Veratr.	1 part to 20 of water	3 months	Useful.
314. Aeonit	1 part to from 10 to 15 of water	6 months	Useful.
315. Daturin	1 part to 4 of water	6 months	Useful.
316. Strych.	1 part to 15 of water	2 months	Useful.
317. Delphin.	1 part to 15 of water	2 months	Useful.
318. Emetin	1 part to 10 of water	30 days	Useless.
319. Digitalin	1 part to 10 of water	10 days	Useless.
320. Biberin	1 part to 4 of water	7 days	Useless.
321. Gentianin	1 part to 3 of water	9 days	Useless.
322. Atrophin.	1 part to 10 of water	10 days	Useless.
323. ——— Sulph	1 part to 10 of water	7 days	Useless.
324. Quin.	1 part to 4 of water	10 days	Useless.
325. Conein	As prepared by the chemist	12 days	Useless.
326. Ergotin	1 part to 6 of water	14 days	Useless.
327. Caiffein	1 part to 4 of water	10 days	Useless.
328. Salicin	Saturated solution in water	10 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	VEGETABLE PRODUCTIONS.		
329. Jalapin	Saturated solution in water	14 days	Useless.
330. Bruc.	Ditto ditto	50 days	Useful.
331. Piperin	Ditto ditto	40 days	Useful.
332. Nicotin	1 part to from 10 to 20 of spirit	30 days	Useless.
333. Furfurin	Saturated solution in water	10 days	Useless.
334. Strych. Phos	Ditto ditto	10 days	Useless.
335. Quiniodin. Sulph	Ditto ditto	12 days	Useless.
336. Camphor	Saturated solution in spirit	10 days	Useless.
337. Sp. Pyroxil.	As prepared by the chemist	16 days	Useless.
338. Sp. Pyro Acet	Ditto ditto	18 days	Useless.
339. Sp. Æther. Nit.	Ditto ditto	18 days	Useless.
340. Sp. Vin. Rect.	Ditto ditto	10 days	Useless.
341. Sp. Æth. Sulph	Ditto ditto	7 days	Useless.
342. Copaiba	Ditto ditto	9 days	Useless.
343. Santonin	Saturated solution in water	10 days	Useless.
344. Furfurmid	Ditto ditto	12 days	Useless.
345. Tannin	Ditto ditto	9 days	Useless.
346. Prussian Blue	Ditto ditto	7 days	Useless.
347. Morphia	Ditto ditto	20 days	Useless.
348. ——— Acetat	Ditto ditto	16 days	Useless.
349. ——— Hydroch	Ditto ditto	9 days	Useless.
350. ——— Meconat.	Ditto ditto	10 days	Useless.
351. ——— Citrat	Ditto ditto	7 days	Useless.
352. ——— Sulphat	Ditto ditto	14 days	Useless.
353. ——— Iodid.	Ditto ditto	8 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	VEGETABLE PRODUCTIONS.		
354. Opii Tinct.	As prepared by the chemist	9 days	Useless.
355. Papav. Extract	Ditto ditto	10 days	Useless.
356. Matico	A tincture	14 days	Useless.
357. Tabaci Folia	Ditto	10 days	Useful.
358. Colchicum	Ditto	12 days	Useless.
359. Lobelia Inflat.	Ditto	30 days	Useful.
360. Aconit.	Ditto	25 days	Useful.
361. Cannabus Indicus	Ditto	10 days	Useless.
362. Kino	Ditto	10 days	Useless.
363. Catechu	Ditto	8 days	Useless.
364. Hamatoxylum	Ditto	7 days	Useless.
365. Uva Ursi	Ditto	9 days	Useless.
366. Pareira	Ditto	10 days	Useless,
367. Anth. Nob.	Ditto	10 days	Useless.
368. Hellebor.	Ditto	8 days	Useless.
369. Valerian.	Ditto	10 days	Useless.
370. Capsicum	Ditto	30 days	Useful.
371. Sabadilla	Ditto	10 days	Useless.
372. Absinthium	Ditto	9 days	Useless.
373. Myrrha	Ditto	10 days	Useless.
374. Senna	Ditto	40 days	Useful.
375. Hyoscyami Folia	Ditto	9 days	Useless.
376. Serpentaria	Ditto	10 days	Useless.
377. Buchu	Ditto	8 days	Useless.
378. Senega	Ditto	7 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	VEGETABLE PRODUCTIONS.		
379. Lupulus	A tincture	10 days	Useless.
380. Scilla	Ditto	10 days	Useless.
381. Sambul	Ditto	30 days	Useful.
382. Cochlear Armorac	Ditto	10 days	Useless.
383. Pimenta	Ditto	9 days	Useless.
384. Sarsaparilla	Ditto	9 days	Useless.
385. Cascarilla	Ditto	7 days	Useless.
386. Calumba	Ditto	10 days	Useless.
387. Cardamom	Ditto	7 days	Useless.
388. Lavendula	Ditto	8 days	Useless.
389. Veratr. Alb.	Ditto	7 days	Useless.
390. Aloe	Ditto	10 days	Useless.
391. Rheum	Ditto	8 days	Useless.
392. Cubeba	Ditto	10 days	Useless.
393. Cinnamomum	Ditto	8 days	Useless.
394. Assafœtid.	Ditto	24 days	Useful.
395. Koussa	Ditto	3 months	Very useful.
396. Olibanum	Ditto	10 days	Useless.
397. Sagapenum	Ditto	8 days	Useless.
398. Galbanum	Ditto	7 days	Useless.
399. Euphorbium	Ditto	9 days	Useless.
400. Colocynthis	Ditto	10 days	Useless.
401. Toxicodendrum	Ditto	7 days	Useless.
402. Ammoniacum	Ditto	8 days	Useless.
403. Opopanax	Ditto	10 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	VEGETABLE PRODUCTIONS.		
404. Cambogia	A tincture	7 days	Useless.
405. Scammonium	Ditto	30 days	Useful.
406. Pyrethrum	Ditto	3 months	Very useful.
407. Mezereum	Ditto	26 days	Useful.
408. Iris Florentina	Ditto	20 days	Useful.
409. Origanum	Ditto	30 days	Useful.
410. Rosmarinus	Ditto	7 days	Useless.
411. Marubium	Saturated solution in water	8 days	Useless.
412. Tussilago	A tincture	7 days	Useless.
413. Cetraria Islandica	Ditto	9 days	Useless.
414. Cusparia	Ditto	10 days	Useless.
415. Contrajerva	Ditto	10 days	Useless.
416. Tormentilla	Ditto	9 days	Useless.
417. Dulcamara	Ditto	10 days	Useless.
418. Junip. Cacumin.	Ditto	9 days	Useless.
419. Quassia	Ditto	7 days	Useless.
420. Cyminum	Ditto	10 days	Useless.
421. Elaterium	Saturated solution in water	7 days	Useless.
422. Elemi	Saturated solution in spirit	6 months	Very useful.
423. Storax	Ditto ditto	7 days	Useless.
424. Bal. Peruv.	Ditto ditto	9 days	Useless.
425. —— Tolut.	Ditto ditto	10 days	Useless.
426. Mastic	Ditto ditto	10 days	Useless.
427. Tragacanth	Saturated solution in water	12 days	Useless.
428. Crocus	A tincture	9 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	VEGETABLE PRODUCTIONS.		
429. Acacia	Saturated solution in water	12 days	Useless.
430. Canell. Cort.	A tincture	7 days	Useless.
431. Simaruba	Ditto	8 days	Useless.
432. Manna	Saturated solution in water	9 days	Useless.
433. Cydonia	A tincture	10 days	Useless.
434. Cassia	Ditto	11 days	Useless.
435. Pterocarpus	Ditto	30 days	Useful.
436. Sassafras Lignum	Ditto	10 days	Useless.
437. Ulmus	Ditto	10 days	Useless.
438. Quercus	Ditto	8 days	Useless.
439. Glycyrrhiza	Ditto	7 days	Useless.
440. Staphisagra	Ditto	8 days	Useless.
441. Nux Vomica	Ditto	7 days	Useless.
442. Acetosella	Ditto	9 days	Useless.
443. Fœniculum	Ditto	10 days	Useless.
444. Rhamnus	Ditto	7 days	Useless.
445. Inula Helenium	Ditto	8 days	Useless.
446. Rosa Canina	Ditto	10 days	Useless.
447. Three other kinds	Ditto	10 days	Useless.
448. Arnica	Ditto	30 days	Useful.
449. Mucuna	Ditto	7 days	Useless.
450. Sabinæ Fol.	Ditto	8 days	Useless.
451. Diosmeæ Crenat. Folia	Ditto	12 days	Useless.
452. Gratiola Officinalis	Ditto	14 days	Useless.
453. Rubia Tinctorum	Ditto	11 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	VEGETABLE PRODUCTIONS.		
454. Asarabacca	A tincture	12 days	Useless.
455. Acorus Calamus	Ditto	14 days	Useless.
456. Punica Granatum	Ditto	7 days	Useless.
457. Alium Sativum	Ditto	12 days	Useless.
458. Chalotte	Ditto	7 days	Useless.
459. Chirayta	Ditto	12 days	Useless.
460. Lil. Alb. Bulb.	Ditto	9 days	Useless.
461. Polygonum Bistort	Ditto	14 days	Useless.
462. Krameria Triandria	Ditto	16 days	Useless.
463. Rumex Aquaticus	Ditto	12 days	Useless.
464. Prunus Laur.	Ditto	9 days	Useless.
465. Lin. Ussitat. Sem.	Ditto	10 days	Useless.
466. Ranunculus Acris	Ditto	50 days	Useful.
467. ——— Sceleratus	Ditto	60 days	Useful.
468. Spartium Scoparium	Ditto	10 days	Useless.
469. Geum Urbanum	Ditto	9 days	Useless.
470. Indigo	Saturated solution in water	8 days	Useless.
471. ——— Sulphat	Ditto ditto	9 days	Useless.
472. Pix Burgundica	Saturated solution in spirit	10 days	Useless.
473. Cetraria Islandica	A tincture	9 days	Useless.
474. Coc. Indicus	Ditto	8 days	Useless.
475. Curcuma	Ditto	10 days	Useless.
476. Lysimachia vulgaris	Ditto	8 days	Useless.
477. Toxicodendron ver.	Ditto	10 days	Useless.
478. Centaurea	Ditto	9 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	VEGETABLE PRODUCTIONS.		
479. Liverwort	A tincture	12 days	Useless.
480. Cowwort	Ditto	10 days	Useless.
481. Trientalis Europ.	Ditto	9 days	Useless.
482. Cedrus Barri	Ditto	7 days	Useless.
483. Agaricus	Ditto	8 days	Useless.
484. Meyanthes Trifoliata	Ditto	12 days	Useless.
485. Aralia Spinosa	Ditto	10 days	Useless.
486. Salix Triandra	Ditto	9 days	Useless.
487. —— Lanceolata	Ditto	7 days	Useless.
488. —— Nigricans	Ditto	7 days	Useless.
489. Camellia Bohea	Ditto	10 days	Useless.
490. ——— Viridis	Ditto	9 days	Useless.
491. Coriandrum Sativum	Ditto	10 days	Useless.
492. Citr. Aurant. Fruct.	Used in its natural state	7 days	Useless.
493. ——— Cortex	A tincture	10 days	Useless.
494. Cortex Limonum	Ditto	14 days	Useless.
495. Mel	Used in its natural state	7 days	Useless.
496. Dolichos Pruriens	A tincture	9 days	Useless.
497. Cerv. Ela.	Ditto	10 days	Useless.
498. Gum Lac	Saturated solution in spirit	7 days	Useless.
499. Trifol: Repens.	A tincture	4 months	Very useful.
500. ——— Semina	Ditto	4 months	Very useful.
501. ——— Pratense	Ditto	3 months	Very useful.
502. ——— Semina	Ditto	4 months	Very useful.
503. Jug. Reg. Fol.	Ditto	60 days	Very useful.

Agent.	Strength employed.	Duration of trial.	Result.
	VEGETABLE PRODUCTIONS.		
504. Acr. Pseudo-Plat. Fol.	A tincture	14 days	Useless.
505. ——— Cortex	Ditto	12 days	Useless.
506. Til. Rub. Folia	Ditto	40 days	Useful.
507. ——— Semina	Ditto	50 days	Useful.
508. Cors. Avell. Folia	Ditto	14 days	Useless.
509. Ilex	Ditto	20 days	Useless.
510. Fraxin. Excels. Fol.	Ditto	10 days	Useless.
511. ——— Sem.	Ditto	9 days	Useless.
512. Hales. Dipt. Sem.	Ditto	10 days	Useless.
513. ——— Fol.	Ditto	12 days	Useless.
514. Aln. Glutin. Fol.	Ditto	12 days	Useless.
515. Prun. Domest. Fol.	Ditto	16 days	Useless.
516. —— Cerasus Fol.	Ditto	9 days	Useless.
517. —— Armen. Fol.	Ditto	10 days	Useless.
518. Amygd. Persic. Fol.	Ditto	10 days	Useless.
519. ——— Nectarin Fol.	Ditto	12 days	Useless.
520. Bellis Perennis	Ditto	10 days	Useless.
521. Catalp. Syring. Folia	Ditto	10 days	Useless.
522. ——— Flor.	Ditto	7 days	Useless.
523. Acac. Decip. Fol.	Ditto	14 days	Useless.
524. Cytis. Laburn. Fol.	Ditto	10 days	Useless.
525. Fag. Atro-rub. Fol.	Ditto	7 days	Useless.
526. Bignon. Fol.	Ditto	10 days	Useless.
527. ——— Radican. Fol.	Ditto	10 days	Usoless.
528 Rib. Rubr. Fol.	Ditto	12 days	Useless.

Agent.	Strength employed.	Duration of trial.	Result.
	VEGETABLE PRODUCTIONS.		
529. Rib. Alb. Fol.	A tincture	9 days	Useless.
530. —— Nig. Fol.	Ditto	12 days	Useless.
531. Mespil. Germanic. Fol.	Ditto	10 days	Useless.
532. Mal. Fol.	Ditto	12 days	Useless.
533. Syring. Vulgar. Fol.	Ditto	12 days	Useless.
534. Rib. Triflor. Fol.	Ditto	14 days	Useless.
535. Pyr. Commun. Fol.	Ditto	40 days	Useful.
536. —— Pollver. Fol.	Ditto	28 days	Useful.
537. —— Salicifol. Fol.	Ditto	30 days	Useful.
538. —— Arbutifol. Fol.	Ditto	14 days	Useful.
539. Castan Vesc. Fol.	Ditto	14 days	Useless.
540. —————— Fruct	Ditto	10 days	Useless.
541. —————— Cortex	Ditto	3 months	Useless.
542. Æscu. Hippocast. Fol.	Ditto	6 months	Useful.
543. ———————— Fruct	Ditto	12 months	Useful.
544. ———————— Cortex	Ditto	14 days	Useful.
545. Fragar Vesc. Fol.	Ditto	10 days	Useless.
546. Rub. Idæ. Fol.	Ditto	7 days	Useless.
547. Ficus	Ditto	7 days	Useless.
548. Tamarind. Fructus	As met with in the shops	7 days	Useless.

The local application of many of these agents was attended neither with beneficial nor with prejudicial effects. Some few did, indeed, aggravate the disease; and others, that at times were useful, after they had been employed for a few days, became injurious, by occasioning irritation of the epiglottis, and the parts in its neighbourhood; and it thus became necessary to discontinue their use for a time. Only a small but valuable proportion of them could be employed uninterruptedly, without giving rise to any irritation, until a cure was effected. The following are the notes I made of those found most beneficial:—

PHOSPHORIC ACID.

A watery saturated solution of this acid is useful in some cases of hooping-cough. It does not give rise to any laryngeal irritation, and may be used daily.

TARTARIC ACID.

This acid, dissolved in water, may be used every other day in hooping-cough; but, if used daily, it soon gives rise to irritation, and augments the cough.

OXALIC ACID.

A saturated solution of this acid in water sometimes relieves the cough. It may be used daily.

CITRIC ACID.

This acid is also useful in a saturated solution in water, and it may be used daily.

LEMON JUICE

Is very serviceable in some cases.

ACETIC ACID

Will be found very efficacious; but if it does not cure the disease speedily, this acid is likely to increase it by the irritation it occasions; consequently, when it has been used daily for three consecutive days, it must then be employed not more frequently than every other day.

FLUORIC ACID.

This is one of the most valuable agents in the local treatment of hooping-cough, since it will frequently cure the disease in two or three applications. It is, however, particularly liable to irritate the larynx, in which case the disease is certain to be increased, hence great care must be taken to guard against this untoward event. Should such a result, however, ensue, this treatment must be altogether withheld, until the irritation has subsided, when we may again have recourse to it. After it has been used daily for two or three days, it may be continued every other day. The strength I have found most efficacious is one part of acid to seven of water.

TUNGSTIC ACID

Is beneficial in some cases; but should it not effect a cure in a few days, it appears, like many other remedies, to lose its power over the disease.

IODIC ACID.

A very weak solution of this acid in water, so as to be almost tasteless, is highly efficacious in hooping-cough, and it may be employed daily until the disease disappears.

IODIDE OF LEAD

Will be found useful in some cases, in a watery solution. It does not occasion irritation of the larynx.

BINIODIDE OF MERCURY,

Dissolved in water, rapidly mitigates the force and frequency of the paroxysm, but rarely accomplishes a rapid cure.

NITRATE OF SILVER.

Much has been written in favour of this agent in hooping-cough. I must confess, however, that, although it is probable that I was the first person to employ it in the local treatment of this disease, it has always disappointed me; I never yet found it cure a case rapidly, though occasionally it has relieved one, whilst not unfrequently it has augmented the disorder. From the positive manner in which its virtues have been extolled, I have twice returned to its use, fancying that I must have been mistaken in my views, and each time I have taken twelve average cases, but always with the same unsatisfactory results.

CHLORIDE OF POTASH

Will be found useful, and, in mild cases, will sometimes remove the disease.

SOLUTION OF POTASH,

Diluted with water, will generally mitigate the force of the paroxysms in a short time, provided that care is taken not to continue its use long enough to irritate and inflame the larynx, which it is likely to do.

ACETATE OF POTASH.

This is a more useful application than either of the foregoing, and it will not unfrequently cure the disease.

SULPHURET OF POTASH

Is an excellent remedy; and it has this advantage, that it never occasions irritation or inflammation of the larynx, however frequently it may be used.

TARTRATE OF POTASH AND IRON

Belongs to a group of extremely useful agents. If it does not cure, it will be generally found beneficial in diminishing the force of the complaint.

PRUSSIATE OF POTASH

Is a useful agent in the treatment of this affection.

SULPHO-CYANIDE OF POTASSIUM.

This preparation evinces considerable power over hooping-cough, diminishing its force, and, in some cases, curing the disease.

SILICATE OF POTASH

May be used with advantage in some cases.

FLUORIDE OF POTASSIUM

Is a useful application, but rarely equal to effecting a cure.

BICHLORIDE OF MERCURY

Is sometimes useful.

SULPHATE OF SODA

Is a very useful agent, and one that may be used for an indefinite period.

SULPHURET OF SODA.

This is equally useful as the foregoing.

HYPOSULPHITE OF SODA

Is very useful in all cases.

FLUATE OF SODA

Relieves the disease, but rarely effects a cure.

ARSENITE OF SODA

May be resorted to in this complaint with advantage.

CHLORIDE OF SODA

Is also a very useful agent, and sometimes cures the disease in a short time.

CHLORATE OF SODA

Is less useful than the preceding salt.

CARBONATE OF MAGNESIA

Soothes the severity of the paroxysms, but does not cure the affection quickly.

BROMIDE OF LIME

Possesses some influence over the disease.

NITRATE OF BISMUTH

Is sometimes useful in this disorder.

CHLORIDE OF AMMONIA

Has considerable efficacy in the treatment of hooping-cough, although it seldom effects a cure in less than three weeks.

AROMATIC SPIRIT OF AMMONIA

Is also useful in this affection.

BENZOATE OF AMMONIA

Quickly mitigates the paroxysms, but seldom cures the disease rapidly.

SESQUICARBONATE OF AMMONIA

Manifests very considerable efficacy in hooping-cough.

OXALURET OF AMMONIA

May be employed with advantage in the treatment of this disorder.

ACETATE OF AMMONIA.

This is a valuable remedy in the treatment of hooping-cough, since it frequently cures it in a short time, and never fails to afford some relief.

AMMONIA WITH ALUM

Relieves, but does not cure.

ALLANTOIN

I have found useful in some cases.

CHLORIDE OF PLATINUM

Is useful in hooping-cough. It frequently gives rise to sickness.

SULPHURET OF PLATINUM

Is also useful in this disease; but no dependance can be placed upon it for curing the disease rapidly.

CHLORIDE OF GOLD,

Although it frequently gives rise to sickness, is very useful in this disorder.

SULPHURET OF GOLD.

This is equally efficacious with the foregoing.

BISULPHURET OF TIN

Is an efficacious agent, and may be used for an indefinite period without giving rise to laryngeal irritation.

SULPHATE OF BARYTA

Sometimes effects a speedy cure.

OXIDE, ACETATE, AND SULPHATE OF ZINC

Have about equal claims upon our notice, as regards their efficacy in removing this disorder. The latter often gives rise to sickness, but none of them ever occasion spasm or inflammation in the larynx.

SULPHURET OF COPPER

Is a most excellent remedy in this disorder; it cures the mild cases rapidly, and mitigates the force of the disease in those of a severe nature. It may be used for any length of time without laryngeal disturbance.

The saccharine carbonate of iron, the carbonate, the ammoniated tartrate, the sesquioxide, and the citrate are valuable additions to the remedies already noticed in the local treatment of hooping-cough; not one, however, is equal to the ammoniated citrate, which exhibits so great a power over the disease, that there are but few cases it will fail to cure in the course of two or three weeks.

PHOSPHORUS.

A solution of phosphorus in oil, together with the phos-

phate of lime and soda, are useful in this affection, but they rarely effect a cure in a short time.

BROMIDE OF LIME AND POTASSIUM

Are useful agents in the treatment of this disorder.

SULPHURET OF ANTIMONY

Is the only preparation of this metal that has any influence in arresting the progress of this disease.

CHLORIDE OF STRONTIAN.

Of all the agents I have yet examined that exert a beneficial influence over the disease, this is the best; when, however, it is continued in severe cases daily for a week or ten days, it gives rise to laryngeal irritation, and increases the cough; its use, therefore, in these cases must then be suspended for a few days; but, beyond this, it is unattended with any objectionable consequences. It frequently effects a cure in a few days.

SPERMACETI

Is a useful agent in the disease.

MINERAL WATERS.

Out of the eighteen I have examined, one only has exhibited any beneficial effect, and that is the Freidrichshall.

VEGETABLE KINGDOM.

THE ALKALOIDS.

These compounds require the greatest possible caution in their use. Acting on the nervous system so speedily and violently as they do, even in minute doses, their employment is thus rendered extremely dangerous, unless great caution is used. I was occupied several months in the daily use of them before I could satisfy myself of their real value.

VERATRIA.

This agent will sometimes arrest the cough on a single application. It is exceedingly irritating, and not unfrequently gives rise to a spasmodic, suffocating cough of a most distressing character. Its application may be continued for three or four days consecutively; but, if used for a longer period, bronchitis, difficult to cure, is likely to set in. This seems to arise from an extinction of nervous power in the bronchial tubes.

ACONITINE.

Though more violent than the foregoing, it possesses greater efficacy in the disease; but it is likely to occasion violent spasm of the epiglottis and adjacent parts, and, like veratria, gives rise to bronchitis. It not unfrequently occasions spasm of the abdominal muscles.

DATURINE.

This is a very useful agent. It does not occasion spasm, like the two preceding remedies, or any irritation in the larynx, and it may be continued daily for an indefinite period, unless it produces delirium, which it sometimes does. It will always mitigate the disease, and frequently cure it in the space of from ten days to three weeks.

DELPHININE.

This strongly resembles aconitine in its effects; and in several cases I have known the disease cured by a single application. But when it does not succeed in a few days, it should be withdrawn, since it is very liable to produce bronchitis of a severe and unyielding kind.

STRYCHNINE

Resembles the above in its effects.

BRUCIA

Is useful in many cases. It does not occasion any spasm or irritation of the larynx.

PIPERINE

Mitigates the paroxysms of this affection, but will not cure it.

GUM ELEMI

Is but little inferior to the chloride of strontian in the local treatment of this affection. It is unattended by laryngeal irritation, however long it may be employed.

None of the preparations of opium possess any efficacy in the disease; but the leaves of tobacco and senna are useful, as well as the lobelia inflata and monk's-hood. We may class sambul and hyoscyamus in the same category, whilst capsicum is a yet more valuable remedy, and not unfrequently cures the disease quickly. Koussa, assafœtida, and pellitory are entitled to rank high among the useful agents in hooping-cough. The latter, however, is a very dangerous remedy to apply, since it evidently contains a very active agent, partaking of the character of aconite. Scammony, orris root, and sweet marjoram are useful in a somewhat less degree than the three preceding; ranunculus is also of considerable service, and so is the essence of lemon. Clover, especially, is of great value in checking the disease, and will rapidly cure slight cases; but, in the complicated forms of the disorder, it seems to lose its power after a time. All parts of the plant are useful, but the flowers and seed of the white clover are the most efficacious. Walnut-tree leaves are equally useful as the foregoing; neither of them occasions laryngeal disturbance, nor are they in any way disagreeable to children. Grass seeds are deserving of equal praise. Lime-tree seeds are not so rapid in their effects as the three foregoing, but they generally cure the disease in three weeks. The horse-chestnut evinces a remarkable power over hooping-cough: it rarely fails to cure the disease, and seldom occupies more than ten days or a fortnight for this object. The bark is the most efficacious part of the tree.

I commenced the treatment of hooping-cough in 1846 with the nitrate of silver, dissolved in distilled water, of various strengths; and, although, even at that time, I considered it an almost useless agent in the treatment of this complaint, I resumed its employment on two separate occasions, because I feared that I had not given it a sufficient trial to entitle me to arrive at the opinion I had formed, in consequence of observing its virtues so highly extolled by several writers, who had employed it as a local application to the larynx in the same disease. I, however, still entertain my original opinion, that it is an agent of but little value in this affection.

Nitric acid has lately been announced as a new and specific agent in the treatment of hooping-cough. This, indeed, surprised me, as I have been in the habit of employing it in the treatment of that disease for several years, and I believe it is commonly prescribed by many medical men. I cannot say I have found any benefit to arise from its use in moderate doses, administered three or four times a day; and in larger and more frequent doses I have

found it so injurious that it had to be discontinued.

During the period that elapsed between October, 1849, and November 22nd of the same year, I treated twenty-two cases of hooping-cough, by applying a saturated solution of oxalic acid, in distilled water, to the larynx. It appeared sufficiently useful to justify me in classing it among the valuable agents in the local treatment of that disease, and the following is the note I made of it at the time:—"A saturated solution of this acid in water sometimes relieves the cough; it may be used daily." On referring to the cases in my note-book, I find that one alone was rapidly cured, the others variously occupying several weeks in the course of treatment. But, in consequence of observing the beneficial results of oxalic acid in phthisis, I determined to make another trial of it in hooping-cough, and to employ it not locally but generally. I accordingly commenced its use at the close of January in the present year, and prescribed it in every case that presented itself to me for several weeks. Its effects in the majority of cases were most satisfactory; not a few after the first dose, and

many after the third and fourth, were sensibly relieved. In some, the paroxysms gave way in frequency, but not in force, whilst in others it was the violence, and not the number of the attacks, that was diminished; others again became better in the day, whereas their cough was not relieved at night; whilst those who, under the influence of the acid, passed better nights, presented no signs of improvement during the day. It is difficult to lay down any fixed rules as to the doses in which this acid should be administered: children whose ages range between one month and six, will bear from an eighth to a quarter of a grain three times a day; beyond that age, and up to three or four years old, they may take from a quarter to three quarters of a grain, and even a whole grain. I have found the latter dose, in three instances lately, quite equal to the removal of the disease in adults.

Notwithstanding the great value of oxalic acid in hooping-cough, I had numerous cases, in which the disease was more or less complicated with bronchitis, particularly in children under the age of twelve months, upon whom its remedial effects could not always be de-

pended on; indeed, in some few instances, it seemed to aggravate the disease. This induced me to give a trial to the chloride of strontian, which I had found some years before so efficacious in the local treatment of this affection; in truth, the success I then met with led me to believe for a time that I had discovered the object of my pursuit. Nor have the expectations which I then entertained of this new agent been since disappointed; for, however serviceable it may be in the local treatment of the disease, it is a remedy of much greater value when introduced in the ordinary manner into the system, and is more efficacious in the treatment of hooping-cough than oxalic acid. The dose I have found most useful, for a child under six months old, is from three grains to five, three times a day; beyond that age, and up to three, I have given, with the greatest advantage, five to seven grains, whilst patients who have passed that age may take from seven to fifteen grains at the same intervals. I have employed it in a considerable number of cases with remarkable success; these have embraced children from a few weeks old up to the age of ten years, many of whom laboured under bron-

chitis of varying character, ranging from a mild attack up to that which threatened a fatal termination. The bronchitis in most cases speedily gave way, and the hooping generally disappeared in the course of ten days or a fortnight; many cases in which each paroxysm was attended by sickness were speedily relieved of that symptom; and, in short, the improvement became progressive and lasting. Nor did the patient, in the majority of cases, when the disease had assumed this favourable aspect, suddenly relapse, as too frequently happens, at the very moment when the disorder has promised a speedy recovery. It is true, that, in some cases where the hoop had disappeared on the third or fourth day, it subsequently returned. This, however, might generally be traced to the fact of the children having been exposed to the night air, or to some other injurious influence, or neglect on the part of the parents in allowing their children to wander out of doors when they pleased, under the erroneous notion that they were doing them good by keeping them constantly in the open air. These cases, however, by persevering with the medicine, speedily became manageable, and in

most instances rapidly recovered. Where the attendant bronchitis was very severe, it sometimes became necessary to relieve it by counter-irritation. Instead, however, of blistering or irritating the chests of children, a plan which is far from being unattended with danger, I invariably apply a small blister to the arm, between the shoulder and elbow, and keep it discharging so long as any bronchitis remains. This will be found a very efficacious mode of treating the bronchitis of children, and it will also be of great advantage to apply a blister to the back of the ear and keep it discharging, when the brain is threatened with, or is actually labouring under, congestion.

I would recommend that the treatment of hooping-cough be commenced with oxalic acid, but if no amendment be perceptible when it has been employed for four days, it should be withdrawn, and the chloride of strontian given in its stead. Should this, too, fail to produce any beneficial effect after a few days' trial, the sulphate of strontian may be resorted to with advantage, since I have known the most favourable results produced by its administration in the dose of a grain taken three times a day, for

children under two years old, whilst for those beyond that age the quantity may be increased to two, and even three, grains. Although the salts of strontian resemble in some respects those of baryta, they differ from the latter in not being poisonous, and consequently may be employed without apprehension in the doses indicated. Fluosilicic acid, an agent hitherto unknown in medicine, will be found a valuable auxiliary in the treatment of hooping-cough. It may be administered to young children in two-minim doses, whilst those who have passed that age may take three, and even four, minims. It is also a valuable agent in the treatment of consumption.

It has been a frequent remark of the mothers of my little patients, that after their children have recovered from hooping-cough under my treatment, they were in better health than they had ever been before. This circumstance arose partly from their not having been subjected to those severe measures which are often resorted to in the treatment of this disease, and partly from their not having experienced the weakening effects which the great length of time usually occupied in its removal so often

occasions. I also believe that the frequent introduction of the sponge into the larynx is serviceable to the health of children, by widening the orifice of the windpipe, and thereby affording a freer passage for the ingress and egress of air.

Case I.

Jane B——, ætat. twenty-two, residing at 5, Millbank-street, Westminster, applied on April 1st to me, in consequence of hooping-cough of a week's duration. She does not know whether she had the disease during childhood, but believes she caught it from her child, who is now labouring under the same complaint. She had a dry, hard cough for a week previously to the development of the hoop. The cough was much worse during the night than the day, so that she was frequently obliged to sit up in bed, from the fear of being suffocated by its violence. Five grains of the chloride of strontian were ordered three times a day. On April 4th the violence of the cough had diminished, and ten grains of the chloride were prescribed to be taken at the same intervals. On April 7th the hooping and suffocative character of

the cough had entirely disappeared. The medicine was continued until the 10th, when she was quite well.

Case II.

Elizabeth B——, ætat. nine months, daughter of the foregoing, was placed under my care on April 1st. The mother first observed her to hoop about nine days before; but she had had a cough for at least nineteen days previous to my seeing her. She hooped about thirty times in the twenty-four hours. Three grains of the chloride of strontian were prescribed three times a day; and on the 4th the dose was augmented to five grains. By the 10th every trace of hooping had disappeared, and the child was in excellent health.

Case III.

Alexander P——, ætat. seven, residing at Oakley-street, Lambeth, was placed under my care on April 3rd. He had just recovered from the measles, when the hooping-cough followed. It was of one week's standing. Ten grains of

the chloride of strontian were ordered three times a day; and this plan was pursued, with a daily improvement, until the 12th, when he was quite well.

Case IV.

William P——, ætat. four and a half, brother of the above, was brought to me on April 3rd, labouring under hooping-cough of a fortnight's duration, having also previously had the measles. He hooped about eighteen times in the twenty-four hours. Ten grains of the chloride of strontian were given three times a day. On the 9th the child had recovered from the hooping, and was looking much better.

Case V.

Peter P——, ætat. three, a brother of cases III. and IV., like them, had just recovered from the measles. He was placed under my care April 3rd. Hooping was first observed fourteen days previously, and the paroxysms took place about twenty-four times in the twenty-four hours. The child laboured under consi-

derable bronchitis, and was sick after every fit of coughing. Five grains of the chloride of strontian were prescribed three times a day; but on April 7th, as no very marked improvement had ensued, ten grains were given, and this dose was continued until the 16th, when the child appeared to be quite well, no hooping having been observed for the last three days.

Case VI.

Alexander P——, ætat. thirty-four, father of the three foregoing cases, applied to me on April 4th, in consequence of having suffered for the last fortnight from a severe cough, which had been repeatedly attended with hooping during the last few days, and these had been so violent as to end in vomiting. He believed he had had the disease in childhood. Fifteen grains of the chloride of strontian were ordered three times a day. April 6th. Had not hooped after the second dose of the medicine, although a slight cough still remained. I saw this man two or three times afterwards, when he came to the house with his children, and he was per-

feetly well, having taken only six doses of the ehloride of strontian.

Case VII.

Elizabeth M——, ætat. three years, residing at 47, Palace-street, Pimlieo, was brought to my house by her mother on April 4th. The ehild was very thin and looked ill; she had been hooping for a month, and had eoughed two weeks previously; she hooped about sixteen times in the twenty-four hours, and vomited after eaeh paroxysm. Five grains of the ehloride of strontian were preseribed three times a day; but, on the 9th, as the eough had beeome more violent and the paroxysms quite as frequent, ten grains of the ehloride were ordered to be taken at the same intervals. By the 13th the hooping had entirely subsided; and, on the 15th, she eeased taking medieine, being well.

Case VIII.

George J——, ætat. between two and three years, residing at 47, Palace-street, Pimlieo, was brought to me on April 4th. His mother still

nurses him. A slight cough was first observed seventeen days before, which gradually increased, and terminated in hooping six days before I saw him. Five grains of the chloride of strontian were ordered three times a day, until the 15th, when, with the exception of a slight cough, he was quite well. On April 22nd the child was again brought to me; it had taken cold, and thus brought on a return of the hooping with considerable violence. The same dose of the chloride was again prescribed, and in the course of two days the disease disappeared. On May 12th I heard that the child was in excellent health, having had no return of the hooping, and being altogether free from cough.

Cases IX. and X.

Maria S——, ætat. between two and three years, and George S——, ætat. four months, residing at 47, Tothill-street, were brought to me on April 5th. The former was exceedingly emaciated, and laboured under extensive bronchitis, having suffered from hooping-cough for a month, preceded by a cough of only five days' duration. The fits of coughing were very

violent, and the vomiting which accompanied them exceedingly distressing, indeed the child was unable to stand without support. Five grains of the chloride of strontian were prescribed three times a day, and by the 11th great improvement had taken place, the hooping had nearly disappeared, the vomiting had ceased, and the child had undergone a considerable change in her appearance for the better. On the 16th she was reported well. The little boy's case was unattended by any complication ; he was placed under similar treatment to his sister, and recovered two or three days earlier than she did.

Case XI.

Emma H——, ætat. six, residing at 42, Tothill-street, Westminster, was placed under my care on April 5th. She was first observed to cough ten days before, during seven of which the hoop was distinguished. She had about twenty paroxysms in the twenty-four hours, and vomited after each. Five grains of the chloride of strontian were prescribed three times a day. On April 11th the medicine

was discontinued, the child having ceased to hoop.

Case XII.

Emily H——, ætat. six years, residing at 42, Tothill-street, was observed to hoop for the first time seven days before I saw her, having had a premonitory cough of but three days' standing. The paroxysms took place about ten times in the twenty-four hours, and were always attended by vomiting. April 5th. Ten grains of the chloride of strontian were prescribed three times a day, and, by the 11th, the hooping had entirely disappeared I had several opportunities afterwards of knowing that this child was well, as I happened to be attending her brother for the same complaint, who did not make so rapid a recovery.

Case XIII.

Marian H——, ætat. six months, sister of the above, was brought to me by her mother on April 5th, labouring under hooping-cough of five days' standing, having had a previous cough of two weeks' duration. Five grains of

the chloride of strontian were prescribed three times a day, and continued uninterruptedly till the 18th, when the child had ceased to hoop.

Case XIV.

Marian H——, ætat. six months, sister of the foregoing, had been seized with a cough nineteen days before, but had only hooped during five; the fits were not more frequent than six in the twenty-four hours, but she was sick after each. April 5th. Three grains of the chloride of strontian were ordered three times a day, and continued until the 18th, when the hooping-cough had entirely disappeared.

Case XV.

Eliza E——, ætat. nine months, residing at 42, Tothill-street, Westminster, was placed under my care on April 8th. She had first coughed fifteen days before, and had hooped several times during the last twenty-four hours. Five grains of the chloride of strontian were administered three times a day until the 13th,

when she ceased to hoop, and on the fifteenth the coughing had entirely disappeared.

Case XVI.

Robert S——, ætat. between five and six years, residing at 47, Tothill-street, Westminster, was brought to me on April 8th, in consequence of having hooped for six weeks and also of having had a premonitory cough of fourteen days' duration. The cough had originally been worse than it was when I first saw him, and his mother considered that he was getting well, but as his brother and sister (cases VIII. and IX.) had improved so much, she determined on consulting me. He hooped ten times in the twenty-four hours, and was sick after each fit of coughing. Seven grains and a half of the chloride of strontian were accordingly ordered three times a day; and on the 11th all hooping had disappeared, as well as the sickness. This patient took but nine doses of the medicine.

Case XVII.

Alice P——, ætat. ten months, residing at 11, Wood-street, was placed under my care on April 11th. She had hooped for the last fourteen days, and laboured under bronchitis. Seven and a half grains of the chloride of strontian were prescribed three times a day. This was continued until the 15th, when, the hooping having ceased two days previously, and scarcely any cough remaining, it was withdrawn.

Case XVIII.

Mary Ann A——, ætat. four months, residing at 8, Upper Rupert-street, had coughed but one day before hooping commenced, which continued for a period of six weeks until I saw her, and was also attended with considerable bronchitis. The mother assured me the child had at least fifty paroxysms in twenty-four hours. April 12th. Five grains of the chloride of strontian were ordered three times a day, and continued until the 20th, when the child had perfectly recovered.

Case XIX.

James M——, ætat. seven months, brother of case VI., was brought to me on April 13th, having hooped but two days, whilst the premonitory cough had lasted for twelve. Five grains of the chloride of strontian were administered three times a day; and on the 18th the mother informed me that the child had not hooped for the last twenty-four hours, and that the cough was very slight. However, on April 22nd, she returned with her child, as it was now labouring under bronchitis, and the hooping had returned with more violence than before. Seven grains of the chloride were accordingly ordered three times a day; but on the 25th the hooping had increased in violence, and one-third of a grain of oxalic acid was ordered three times a day. On the 27th, no better: a grain of oxalic acid prescribed three times a day. May 2nd. As no improvement had taken place, half a grain of the sulphate of strontian was ordered three times a day. 4th. Much better; this was, therefore, continued until the 11th, by which time the hooping had disappeared for two or three days, no cough

remained, and the child looked remarkably well.

Case XX.

Charles F——, ætat. six years, residing at 31, Upper Charlton-street, was placed under my care on April 14th. He was first observed to cough about six weeks before I saw him, but the hooping had only commenced on the 6th, and recurred about twelve times in the twenty-four hours. He brought up a large quantity of expectoration at each paroxysm of coughing. Seven grains and a half of the chloride of strontian were prescribed three times a day, and this was continued until the 28th, when the hooping had entirely ceased, and the child was in excellent health.

Case XXI.

William J——, ætat. fifteen months, residing at 5, Tottenham-mews, was brought to me on April 4th. He had then hooped during three weeks, and had coughed for sixteen days previous to that period. The paroxysms were about twenty in the twenty-four hours, and

were each attended with vomiting. In this case the disease was complicated with bronchitis. Seven grains of the chloride of strontian were prescribed three times a day, which was continued until the 11th, when the hooping had entirely ceased, and the bronchitis had disappeared.

Case XXII.

Emily T——, ætat. four, residing at 5, Upper Spring-street, was placed under my care on April 10th. She had hooped two weeks and coughed three; she had at least fifty paroxysms in twenty-four hours, besides having entirely lost her appetite. Ten grains of the chloride of strontian were accordingly given three times a day; and this dose was continued until May 4th, when the cough had entirely disappeared, and she had recovered her strength.

Case XXIII.

Mary H——, ætat. four, residing at 16, John-street, Lambeth, had hooped for ten days, and coughed during twenty-two, previous to my seeing her, and the fits of hooping occurred

about thirty times in the twenty-four hours. Ten grains of the chloride of strontian were prescribed three times a day. She rapidly improved, and on the 25th was nearly well, when she caught cold, and became worse than she had been at all. The chloride was continued without effecting any improvement until May 2nd, when a grain of the sulphate of strontian was prescribed three times a day. Under this treatment she rapidly improved, and on the 13th was quite well.

Case XXIV.

Charles C——, ætat. eighteen months, residing at Norris-street, Haymarket, had had a cough about nine days, and hooped during one only. On April 13th five grains of the chloride of strontian were prescribed three times a day, and this treatment was continued until the 25th. For a few days the hooping increased, after which time it gradually subsided, and at the above date the child was free from the complaint.

Case XXV.

Ann O——, ætat. five months, residing at 19, Upper York-street, Westminster, had hooped for the space of three weeks, and coughed for two previously. April 15th. Five grains of the chloride of strontian were ordered three times a day; this was continued until the 29th with some improvement, but during the last four days no progress was made, when half a grain of the sulphate of strontian was prescribed three times a day. This was pursued until May 4th, when she was quite recovered.

Case XXVI.

Miss H——, ætat. eight. This young lady had hooped for five days without having had any previous cough. April 4th. A grain of oxalic acid was ordered three times a day. This was persevered with until the 16th, when she was quite well.

Case XXVII.

Miss E. H——, ætat. two years, and sister of the foregoing, had hooped two days and

coughed for three, when she was placed under my care, April 4th. Half a grain of oxalic acid three times a day was prescribed; as, however, no great improvement took place in the course of the following week, seven grains of the chloride of strontian were prescribed three times a day. Considerable amendment followed this treatment for a few days, but did not long continue; and, at length, the hooping increased in frequency and force, notwithstanding the dose of the chloride was augmented to twelve grains. April 25. One grain of oxalic acid was prescribed three times a day, and this was continued until May 13th, when the hooping had entirely disappeared, and the child was in excellent health.

Case XXVIII.

John Henry T——, ætat. ten months, residing at 9, Buckingham-place, was brought to me on April 17th, in consequence of his labouring under hooping-cough of two months' standing. Five grains of the chloride of strontian were prescribed three times a day. On the 22nd

hooping had disappeared for the last three days, and the child was quite well.

Case XXIX.

Robert H——, ætat. three years, residing at 3, Vincent-street, Westminster, was brought to my house on April 20th, having hooped but one day and coughed for a week previously. He took five grains of the chloride of strontian three times a day until the 25th, when it was discontinued, in consequence of an entire absence of hooping during the preceding three days. On the 27th, however, he was brought to me again, the hooping having reappeared with considerable violence: and a grain of the sulphate of strontian was, therefore, prescribed, and continued until May 4th, with some slight degree of benefit. One minim of fluosilicic acid was now given three times a day; and in the course of two or three days the hooping disappeared altogether.

Case XXX.

Henry E——, ætat. five, residing at Victoria-

place, Paddington, was placed under my care on April 17th. The child had hooped for ten days, having coughed for a week previously; he also laboured under extensive bronchitis, and was sick after each fit of coughing. Ten grains of the chloride of strontian were prescribed three times a day, and this persevered in until May 2nd, when every trace of the disease had disappeared.

Case XXXI.

Emily E——, ætat. one year, sister of the previous case, was placed under my care on April 17th also. The hooping had existed for two weeks, and had been ushered in by a cough of one week's standing, and like her brother, suffered from considerable bronchitis and sickness. Five grains of the chloride of strontian were prescribed three times a day. She made a steady improvement, and on May 6th was quite well.

Case XXXII.

Eliza L——, ætat. twenty-seven years, residing at 29, Admiral-terrace, Vauxhall Bridge-

road, consulted me on April 18th, in consequence of hooping-cough of two weeks' standing, having been preceded by a cough of not more than four days' duration. She believed that she had not had the disease before. Ten grains of the chloride of strontian were prescribed three times a day. On April 22nd she was quite well, the hooping having ceased after the third dose of the medicine.

Case XXXIII.

Henry D——, ætat. five, residing at 9, Augustus-street, Regent's Park, was brought to me by his mother on April 18th. He had hooped a week, having had a cough for the previous three weeks. Seven grains and a half of the chloride of strontian were ordered three times a day. 27th. As the hooping, although somewhat diminished, still continued, half a grain of the sulphate of strontian was prescribed three times a day; this he continued until May 2nd, when he was quite well.

Case XXXIV.

Christiana D——, ætat. three, sister of the above, was placed under my care on April 21st. She had hooped fourteen days, and coughed a week previously. Five grains of the chloride of strontian were given three times a day. Under this she improved gradually, and on May 4th she was well.

Case XXXV.

Sarah B——, ætat. twenty-one months, residing at 22, Woburn-street, Stingo-lane, was brought to me on April 10th. Had laboured under the disease for two months, and was also suffering from severe bronchitis. Five grains of the chloride of strontian were prescribed three times a day; but as no improvement had taken place on the 24th, a grain of oxalic acid was ordered three times a day. This was continued until the 30th without benefit, when half a grain of the sulphate of strontian was prescribed three times a day, which removed the disease in a few days, and on May 6th was quite recovered.

Case XXXVI.

Charles C——, ætat. two years, residing in Lillington-street, Pimlico, was placed under my care on April 20th. He had hooped for two days, but had coughed for four weeks previously. Five grains of the chloride of strontian were given three times a day. The hooping disappeared after the first dose, but, as the cough continued to be violent, the medicine was continued until the 29th, when the hooping returned. Half a grain of the sulphate of strontian was given three times a day. The disease began shortly to decline; but it was not until May 10th that the child was quite well.

Case XXXVII.

Harriet S——, ætat. four years, residing at 25, Lillington-street, Pimlico, was placed under my care on April 21st. The hooping was observed only four days before, but she had coughed for three weeks previous to my seeing her. She hooped thirty times in the twenty-four hours, and vomited after each paroxysm of coughing. Seven grains of the chloride of

strontian were ordered three times a day. She improved during the first two days, but then caught cold in coming to my house, and became much worse. On May 2nd she took half a grain of the sulphate of strontian three times a day. A favourable change showed itself after the third dose, and on May 6th she was restored to health.

Case XXXVIII.

Harris J——, ætat. fifteen months, residing at 4, Edward-street, Hampstead-road, was brought to me on April 21st. He had hooped for two months, and had coughed for three weeks previous to the appearance of the hoop, and was now worse than he had been at any period during the attack. Five grains of the chloride of strontian were, therefore, prescribed three times a day. Under this he rapidly improved, and on the 29th was quite well.

Case XXXIX.

Catherine C——, ætat. sixteen years, residing at 108, Lucas-street, applied to me on April 22nd, in consequence of hooping-cough

of five days' standing, in addition to having had a previous cough for three weeks. This was the second attack, the patient having already had the complaint in infancy; and she believes she caught the disease this time from some children that she had been attending to, and whom I had been lately treating for hooping-cough. Ten grains of the chloride of strontian were ordered three times a day. The hooping ceased after the second dose of the medicine, and, on the 25th, the girl being well, it was discontinued.

Case XL.

Maria B——, ætat. eleven years, residing at 2, Chapel-place, Edgware-road, was placed under my care April 23rd. She had hooped for two weeks, and had had a premonitory cough of one week's standing. The hooping was of a very violent character, and occurred about twenty times in the course of the twenty-four hours. Ten grains of the chloride of strontian were prescribed three times a day, and this treatment was pursued until the 29th, since, for the first two or three days, the

improvement was rapid. As, however, the patient then ceased to make further progress, half a grain of the sulphate of strontian was given three times a day, under which she rapidly improved, and on May 5th was quite well.

Case XLI.

William B——, ætat. six months, brother of the above, like his sister, had hooped for two weeks, and had had a premonitory cough of one week's duration. The cough was very severe, and he laboured under a considerable amount of bronchitis. Five grains of the chloride of strontian were therefore prescribed three times a day; and this was continued until May 17th, when he was quite recovered.

Case XLII.

Frank C——, ætat. five years, residing at Lillington-street, Pimlico, brother of case XXXIII., had hooped for three days, and had coughed for a month previously. On April 29th half a grain of the sulphate of strontian was prescribed three times a day. On May

4th, as she had improved, the dose of the sulphate was accordingly increased to a grain; on the 13th it was augmented to two grains; and on the 16th he was quite well.

Case XLIII.

James H——, ætat. thirty-three years, father of case XXI., applied to me on May 1st, in consequence of his having laboured under hooping-cough for the last four weeks. This was the second attack, as he had the disease when a child. Ten grains of the sulphate of strontian were ordered three times a day. This dose was augmented to fifteen grains in two days, and continued until the 6th; but as the improvement was inconsiderable, two grains of oxalic acid were prescribed three times a day until the 13th, when the hooping had entirely ceased.

Case XLIV.

Mrs. C——, ætat. thirty-five years, residing at 21, Park-street, applied to me in consequence of her having laboured under severe hooping-cough for five weeks, having had a premonitory

cough of ten days' standing. She had taken some pains to get rid of the complaint, and had been to the seaside at Hastings for a fortnight, but returned without having derived any benefit from the change, and she now considered herself worse than she had been at any period since she was first attacked by the disorder. A grain of the sulphate of strontian was prescribed three times a day; and on May 4th she informed me that she had not hooped for the last twenty-four hours. On the 13th I saw her again; she had had no return of the complaint, and her health and strength had undergone very great improvement.

Case XLV.

William B——, ætat. six months, residing at Cecil-court, Strand, was brought to me by his mother on May 4th. He had hooped for eight days, and coughed during ten previously. Half a grain of the sulphate of strontian was administered three times a day. This was continued until the 12th, when the hooping had disappeared, and the child was quite well.

Case XLVI.

Jane H——, ætat. three years, residing at 14, William-street, Hampstead-road, was placed under my care on May 3rd. She had hooped for four days, and had a premonitory cough of at least thirty days' standing. A minim of fluosilicic acid was administered three times a day in a little water, until the 13th, when the hooping had entirely disappeared, and the child was in excellent health.

Case XLVII.

Sarah B——, ætat. eight years, residing at 49, Goodge-street, Tottenham-court-road, was placed under my care on May 9th, in consequence of hooping-cough of three weeks' standing, in addition to a premonitory cough of seven days' duration. The paroxysms of hooping were severe and frequent, and the child was much reduced in flesh and strength. Half a grain of the sulphate of strontian was prescribed three times a day. On the 12th it was increased to a grain, and on the 14th to two grains; but as no advantage had accrued from its use, two minims of hydrofluosilicic acid

were given three times a day, in its stead, on the 18th, and persevered with, without producing any mitigation of the disease until the 25th, when the chloride of strontian was resorted to in five-grain doses three times a day. An almost immediate improvement followed its use; by June 1st the child had ceased to hoop, and was remarkably well in all respects.

Case XLVIII.

Elizabeth D——, ætat. seven years, residing at 108, Lillington-street, Pimlico, was brought to me on May 20th. She had hooped for five days, and had suffered from a cough of a fortnight's standing before hooping was observed. Two minims of hydrofluosilicic acid were prescribed three times a day until the 25th, when, as the disease was gaining ground, this treatment was discontinued, and seven and a half grains of the chloride of strontian were administered three times a day in its stead. The violence of the cough was perceptibly mitigated after the third dose of the medicine, and on June 1st it was withdrawn, in conse-

quence of the hooping having entirely disappeared.

Case XLIX.

Francis C——, ætat. one year, residing at 29, East-street, Manchester-square, had laboured under hooping-cough for a month, without having had any premonitory cough. The mother of the boy informed me that about a month ago she took the child to a neighbouring medical man to get some medicine for an attack of diarrhœa it was then labouring under, and in the room in which she sat down were three other children, suffering from hooping-cough. On the evening of that day, her child coughed for the first time, and it distinctly hooped also; since then the affection has continued up to the present time, and has now assumed a very severe character. On May 23rd two minims of hydrofluosilicic acid were prescribed three times a day, but with so little advantage, that on the 27th five grains of the chloride of strontian were given three times a day until June 1st, when the hooping had entirely ceased, and the medicine was consequently discontinued.

Case L.

Robert H——, ætat. two years, residing at 95, Chapter-street, Vauxhall Bridge-road, was placed under my care on May 24th. He had hooped for between four and five weeks, having laboured under a premonitory cough of a few days' duration only. A grain of the sulphate of strontian was prescribed three times a day; but as no benefit arose from its use, it was abandoned on the 27th for five grains of the chloride of strontian, administered at the same intervals. By June 1st the hooping had ceased; and on the 3rd the medicine was discontinued, in consequence of the child being in excellent health.